

ONSITE installer™

PROMOTING WASTEWATER TREATMENT QUALITY AND PROFESSIONAL EXCELLENCE

www.onsiteinstaller.com

EDITOR'S NOTEBOOK:
Delaware duo: "We turn tragedy into triumph." p. 6

SNAPSHOT:
Pick up the pace for technology approvals in Pennsylvania p. 26



FOLLOW THE GOLDEN RULE

Performing good works, including helping customers, employees, the poor in our communities, and the environment, will bring honor and respect for the onsite industry p. 10

SYSTEM PROFILE
Huge gravity system in Connecticut p. 20



PRODUCT FOCUS
Drainfield Media and Design p. 30



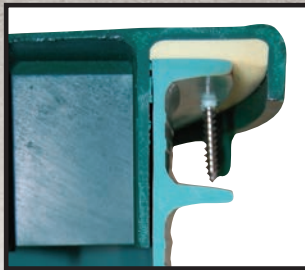
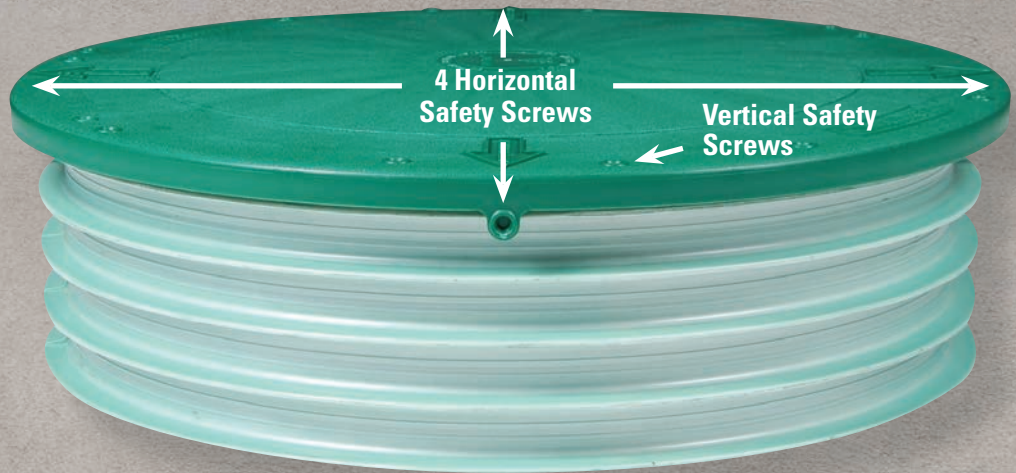
24" HEAVY DUTY MULTI-PURPOSE FLAT RISER LID

**FREE FREIGHT
 on Full Cartons!**

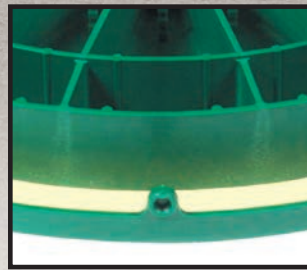
**Fits most commercially
 available:**

- Risers
- IPEX PVC Ribbed Pipe
- Corrugated Pipe

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



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



Foamed-in Permanent Polyurethane Gasket.



Holds up to 70 lbs of Concrete for Added Safety.



Water-TITE™ Joint Vertical and Horizontal Safety Screws

4" Effluent Filter and 4" T-Baffle™

86 ft. of 1/16" filtration area.

Increases time between filter cleaning.



EF-4 Combo Includes Filter, Housing and

4" Sch. 40 & SDR-35

NSF®
 800 GPD
 ANS/NSF
 Standard 46

NSF®
 COMPONENT
 ANS/NSF
 Standard 46

EF-4 Combo 18

NSF®
 COMPONENT
 ANS/NSF
 Standard 46

TB-4-18 Housing
 12/carton

SD-4
 Gas/Solids Deflector

4" Effluent Filter EF-4

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

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

4" Sanitary Inlet/Outlet T-Baffle™

Injection molded T-Baffle™.

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

6" Effluent Filter and 6" T-Baffle™

244 ft. of 1/16" filtration area.

Increases time between filter cleaning.



EF-6 Combo Includes Filter, Housing and Bushing

4" Sch. 40 & SDR-35

NSF®
 1500 GPD
 ANS/NSF
 Standard 46

NSF®
 COMPONENT
 ANS/NSF
 Standard 46

TB-6 Housing

Gas/Solids Deflector

6" Effluent Filter EF-6

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

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

6" Sanitary T-Baffle™

Injection molded T-Baffle™.

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

When You Don't Rock Like You Used To ...



... There is **EZflow**
by INFILTRATOR

Environmentally friendly replacement to traditional stone and pipe drainfields.
ALWAYS CLEAN AND FREE OF FINES

(800) 221-4436 • www.infiltratorwater.com



INSTALLER PROFILE:

Follow the Golden Rule By David Steinkraus

ON THE COVER:

KESS Environmental Services of Opelika, Alabama, provides onsite installation and maintenance of systems placed in famously poor soils. David Mastin (left), manager, and Shane Duncan, owner, are shown at a job site with a Caterpillar excavator. (Photo by Jeff and Meggan Haller)

6 Editor's Notebook:

You've Got a Friend in Me

Two Delaware buddies overcame tough times and found it was their destiny to start an onsite installing business.

By Jim Kneiszal

9 @onsiteinstaller.com

Be sure to check out our exclusive online content.

18 Basic Training:

Lay Pipe Correctly and Save Headaches Down the Road

Take into account these important considerations when connecting components downslope from the dwelling.

By Jim Anderson and David Gustafson

20 System Profile:

Moving Dirt and Pouring Concrete

Olmstead Contracting pulls out all the stops for massive gravity flow system replacement at a Connecticut transitional living facility.

By Scottie Dayton

26 States Snapshot:

Pennsylvania Installers Need Streamlined Approvals for New Technology

Industry advances are stymied by a state government slow to adapt to advanced onsite systems proven to work in other regions.

28 Rules and Regs:

Progress Is Slow for New Michigan Septic Code Bills

By David Steinkraus

30 Product Focus:

Drainfield Media and Design

By Craig Mandli

32 Case Studies:

Drainfield Media and Design

By Craig Mandli

34 Product News

36 Industry News

38 Associations List

Coming in February 2019

ISSUE FOCUS: WWETT Show Issue

Contractor Profile: Meet a top onsite educator

System Profile: Ice road installers in Minnesota

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

Email: info@onsiteinstaller.com • Fax: 715-546-3786

SUBSCRIPTIONS

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

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

CLASSIFIED ADVERTISING

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

DISPLAY ADVERTISING

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



Winnie May

EDITORIAL CORRESPONDENCE

Send to Editor, *Onsite Installer*, P.O. Box 220, Three Lakes, WI 54562 or email editor@onsiteinstaller.com.

REPRINTS AND BACK ISSUES

Visit www.onsiteinstaller.com for options and pricing. To order reprints, call Jeff Lane at 800-257-7222 (715-546-3346) or email jeff.lane@colepublishing.com. To order back issues, call Nicole at 800-257-7222 (715-546-3346) or email nicole.labeau@colepublishing.com.

CIRCULATION

Circulation averages 20,823 copies per month. This figure includes both U.S. and International distribution.

© Copyright 2019 COLE Publishing Inc.

No part may be reproduced without permission of the publisher.



www.facebook.com/OnsiteInstaller



www.twitter.com/OnsiteInstaller



www.youtube.com/OnsiteInstaller



www.linkedin.com/company/onsite-installer-magazine



Presby Environmental

The Next Generation of Wastewater Treatment Technology



The Public Health and Safety Company™



BNQ Certified
NQ: 3680-910



Australian Standard
QPW-2013
LIC:SMK40495

✓ Smaller Footprints ✓ Protects the Environment ✓ Less Expensive

ADVANCED ENVIRO-SEPTIC® (AES)
SCALABLE FOR ANY PROJECT

wwett **BOOTH 6104**

✓ TREATMENT & DISPERSAL

✓ PASSIVE

✓ AFFORDABLE & RELIABLE



PresbyEnvironmental.com 800-473-5298



ADVERTISER INDEX

January 2019

	Alita Industries, Inc.	33
	Ashland Pump.....	13
	BioMicrobics, Inc.....	9
	Brenlin Company, Inc.....	25
	Clarus Environmental.....	23
	Crest Precast, Inc.....	25
	Eljen Corporation.....	29
	Fergus Power Pump, Inc.....	33
	Fuji Clean USA.....	8
	Infiltrator Water Technologies, LLC.....	3

	Jet Inc.	39
	Meaty-Delivery.....	39
	National Precast Concrete Assoc.....	15
	Norweco, Inc.....	19
	Polylok, Inc.....	40
	Presby Environmental Inc. (PEI).....	5
	Roth North America.....	31
	SALCOR, Inc.....	17
	Septic Products, Inc.....	23

	Sim/Tech Filter Inc.....	25
	Simple Solutions Distributing.....	39
	SJE-Rhombus®.....	27
	T&T Tools Inc.....	16
	The Shaddix Company, Inc.....	39
	TUF-TITE, Inc.....	2
	Wieser Concrete.....	33
	WWETT Show.....	37

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.





You've Got a Friend in Me

Two Delaware buddies overcame tough times and found it was their destiny to start an onsite installing business

I've heard a lot of stories about how two people with a passion for small business got together to start a wastewater-related company, but this one really takes the cake.

It was out of an unstoppable will to survive and succeed that friends Jason Guarino and Tyrone Gale Jr. forged a partnership to open Sussex Septic Services six months ago in Georgetown, Delaware. The road to the onsite business was a bumpy one as both men survived near-death experiences and supported each other as they rebuilt their lives.

The men had become fast friends when they worked for the same employer; Guarino as a mechanic on diesel engines and hydraulics and Gale as a limo driver. They went their separate ways — Guarino eventually working in the onsite and septic service business and Gale opening his own limo service, Atlantic Transportation. Then tragedy struck.

Guarino, 44, five years ago suffered an often-fatal brain aneurism while doing mechanic work in his garage. After a 10-hour craniotomy surgery and a year of recovery, he was let go from his job, recalling how his employer labeled him a “liability.”

“There was a day when I was shoveling and sweating and my clothes were drenched, and I was just smiling and laughing. I don't have to do any of this, but I frickin' love it!”

Tyrone Gale Jr.

A short time later, on June 7, 2014, Gale was the driver in a highly publicized crash on the New Jersey Turnpike as he chauffeured *30 Rock* and *Saturday Night Live* comedian Tracy Morgan and his entourage home from a show at a casino in Dover, Delaware. Morgan and Gale, 44 at the time, suffered serious injuries, and comedian James “Jimmy Mack” McNair was killed. A Walmart tractor-trailer driver was charged with vehicular homicide and had apparently fallen asleep at the wheel before rear-ending Gale's limousine.

GETTING DOWN AND DIRTY

The life-altering experiences gave each man a sense of urgency to work hard to accomplish goals. Guarino wanted to pursue a dream of building his own onsite installing company, and Gale wanted to help him make that



▲ Gale, left, and Guarino with one of their service trucks. Guarino's son, Giovanni, 14, created the Sussex Septic Services logo shown on the truck. (Photos courtesy of Jason Guarino)

happen. Using part of a lawsuit settlement with Walmart, Gale helped finance the purchase of excavation equipment for Guarino, and then the two partners started digging their way toward success last June.

In a few months, Sussex Septic Services completed about 20 onsite installations and went into the winter with the start of a backlog that would keep their two-man enterprise busy into the future. Though he doesn't have to work anymore, Gale jumped into the trenches and through training from the Delaware Onsite Wastewater Recycling Association is working on appropriate licensing and soaking up all the knowledge Guarino can share with him.

» Jason Guarino, who recently won first place in the Delaware Onsite Wastewater Recycling Association Roe-D-Hoe competition, is shown using a Wacker Neuson 6003 excavator.

The two hardworking guys say it's been a perfect match and they see great potential in the onsite industry.

"I know when I first started out, I was kind of in the way more than I was helping. Then there was a day when I was shoveling and sweating and my clothes were drenched, and I was just smiling and laughing," Gale says of the — perhaps unexpected — joy he derives from his new job. "I don't have to do any of this, but I frickin' love it! People are very distressed when their septic system has a problem, but then we can do something to help and you see their gratitude. We're going to take care of it and do it right."

"I took him out of a suit and tie and into jeans and a T-shirt and in the hole with me and he loves it. He's been there 100 percent of the way for me; he's just backing me and it's awesome," Guarino says of his business partner. "We need one another. I have all the licenses and experience and operate the equipment, and he has the business smarts. He's started out at the bottom, shovel in hand, and is learning just like I did. He doesn't need to get his hands dirty, but he's driven by watching a business grown from nothing into something big."

The mutual admiration these buddies have for each other is inspiring. But it was clearly a tough road to arrive at this happy place.

"I never in my wildest dreams could have imagined owning my own business.

I was always the one who worked sunup to sundown. It's who I am. I'm a worker, and it's what I do and what I know in life."

Jason Guarino

TRAGEDY STRIKES

Guarino had been aware he was susceptible to aneurysms by heredity; his mother, a sibling and several other relatives had suffered from weakened arteries that can rupture with devastating consequences, often leading to death. He had a CT scan and doctors at first did not detect a problem. But then he collapsed and it felt like "someone came up from behind me and shot me," he explains. Gale was there when he came out of the operating room.

"I feel like I'm the luckiest man in the world. Why did (God) let me live? It's a blessing to be able to get out of bed every day and actually do what you love," he says.

Fate snuck up on Gale as well.

When Tracy Morgan's name came up on the job board at Atlantic Transportation, Gale (the company owner) grabbed the ticket for himself. He loves comedy and jumped at the chance to drive the carload of comedians around. But it wasn't the best introduction with Morgan, who was "standoffish" when Gale picked him up at his home, at first telling him,



"Hey, I appreciate you picking me up, but I don't want you to show up again unannounced. I'd hate to call the cops on you."

But they built a rapport on the long trip and "you would have thought we went to college together, and it was like a reunion. I watched the show and it was one of the best shows I've seen in that area in at least five years."

Gale was going to turn the group over to another driver for the trip home, but he says Morgan insisted he get back behind the wheel of the tricked-out Mercedes Sprinter van. At 1 a.m., traffic slowed to a standstill on the turnpike, and that's when an explosion rocked the vehicle.

"It was almost like watching the military channel and your tank hits an IED. I thought the road blew up. The next thing you know we were twirling around and my shoulder was scraping on the asphalt while we were spinning," he recalls. "Everyone is screaming and I'm screaming; and at that moment, every game that I missed with the kids, every moment I took for granted in my life just flashed in my head."

He was heartsick to learn McNair died in the crash. They became close even though they'd just met that night. To this day, he meets once a year with McNair's sister and checks on his kids. It may seem unusual, but the limo driver and the others in the crash keep in touch.

"Me and Tracy still talk; the seven of us all together, in Tracy's words, we're brothers for life," says Gale, who admits to feeling guilt over the accident even though he couldn't have prevented it. And the Walmart settlement that made him financially independent? "I would have handed that check over just to be able to drop Jimmy Mack back off to his family."

INVESTING WISELY

The money offered financial security, but it didn't make Gale happy. He was too used to working hard. "I was more depressed because for the first time in my life, I had nothing to do," he recalls. So he bought some investment properties and a farm that he transformed into Heartwind Sober Living, a residential facility for recovering drug addicts. Drugs and alcohol had impacted Gale, and this was his way to give back.

**SMART & NIMBLE
RISES TO THE TOP!**



**Better
treatment
in 1/4 the size!**



World's #1 onsite treatment company
Limited Distributorships Available
 207-406-2927 • www.fujicleanusa.com

**Beyond
buckets
and blades.**



FIND OUT HOW.
 FREE subscription at digdifferent.com



And the sober house triggered him to go into business with Guarino. The five-bedroom facility had a failing septic system and an onsite designer had recommended a large mound system as a replacement. Gale asked for his friend's opinion, and Guarino recommended an alternative system that took up less space, allowing for future expansion of the facility.

Gale became intrigued with the wastewater industry. He knew Guarino had an amazing work ethic, and he now saw he had the expertise and know-how to succeed in the onsite business.

Guarino recognizes an uptick in construction coming at the same time as an aging of the workforce in the wastewater industry. Those factors make Guarino think they can add another crew this year and potentially expand into pumping and other related work.

"I never in my wildest dreams could have imagined owning my own business. I was always the one who worked sunup to sundown. It's who I am. I'm a worker, and it's what I do and what I know in life," Guarino says.

"Actually I feel alive in this because it's your business and you're two friends working together," he continues. "I tell you: The first two months were nothing but risks and it was as scary as the aneurism. But failure is not an option for me; I can't fail a friend who's willing to do this for me.

"This goes to show you can never give up on life," he concludes. "There are always doors to open, and if you don't take the leap, you'll just never know."

A BRIGHT FUTURE

Gale knows the company will succeed, in large part because of his partner's work ethic.

"This guy will not — *will not* — leave a job site until he's satisfied. We've had moments where he doesn't like how this is coming out and he says, 'I'm going to take it out and start it over and do better.'"

Two goals come to Gale's mind when talking about the onsite business: providing jobs for people in the area — hopefully even some of the residents at the sober home — and one day turning the company completely over to Guarino.

"One thing about J (Jason) and I: We turn tragedy into triumph," Gale says. "With the two of us, every day is a victory. There's no way to lose, unless we just don't wake up. Let's just keep doing the best we can do." □

JOIN

THE CONVERSATION.
 THE CAMARADERIE.
 THE COMMUNITY.

**ONSITE
installer**

- facebook.com/OnsiteInstaller
- twitter.com/OnsiteInstaller
- youtube.com/OnsiteInstaller
- linkedin.com/company/onsite-installer-magazine

@onsiteinstaller.com

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



BELOW-GRADE TREATMENT

Trenches or Seepage Beds

Get the breakdown on two common below-grade soil treatment systems: trenches and seepage beds. Both of these systems benefit from shallow placement to maximize the natural soil biota, oxygen levels, evaporation and nutrient uptake by vegetation — but which to use? Check out our tips online.

onsiteinstaller.com/featured



TOP 10

Most-Read Articles

If you missed them, here's a chance to check out our most popular online articles from 2018. We rounded up the top 10 most-read stories. We covered everything from pipe bursting to designing onsite systems for dog kennels or vet clinics. Enjoy this look back at 2018.

onsiteinstaller.com/featured

Overheard Online
“Whenever possible, get the reviewer to either email or call you so that you can work things out one-on-one, rather than hashing it out in public.”

– *The Best Way to Handle Bad Online Reviews*
onsiteinstaller.com/featured

WHICH PUMP TO USE

Single Stage vs. Turbine

Two commonly used pumps are the single-stage centrifugal pumps and screen turbine pumps. Typically, the decision between these two applications will focus on the head requirements of the system, but there are other items to consider. Expert Sara Heeger outlines the advantages and disadvantages of each.

onsiteinstaller.com/featured



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

CONNECT WITH US

Find us on Facebook at facebook.com/OnsiteInstaller
 or Twitter at twitter.com/OnsiteInstaller

- Residential
- Community
- Commercial



AWARD-WINNING INTEGRATED WATER TECHNOLOGY

- ✓ **Bio-Microbics FAST® System** • black & greywater treatment
- ✓ **SeptiTech® STAAR® Trickling** • drainfield limits/direct discharge
- ✓ **BioBarrier® MBR & HSMBR®** • large scale & specialty application
- ✓ **RollsAIR® XL & XXL System** • remediation or retrofit
- ✓ **SaniTEE® Screening Devices** • environmentally-sensitive
- ✓ **Recover® Greywater System** • highly stable denitrification
- ✓ **d-Rain Joint™ Rainwater Filter** • greywater treatment/recycling
- ✓ **BioSTORM® Treatment System** • restaurants & commercial kitchens
- distance to groundwater sources
- drip irrigation or other reuse
- waterfront properties
- small / difficult lots

Simple, Low Cost, Robust Water, Wastewater, Greywater & Stormwater Treatment Systems

BIO MICROBICS®

BETTER WATER. BETTER WORLD.®

www.biomicrobics.com
800.753.FAST (3278)
sales@biomicrobics.com

© 2018 Bio-Microbics Inc.



FOLLOW THE GOLDEN RULE

Performing good works, including helping customers, employees, the poor in our communities, and the environment, will bring honor and respect for the onsite industry

By David Steinkraus

The soil may not be good in central Alabama, but for KESS Environmental Services of Opelika, business is well-rooted and growing. This 15-person company focusing almost exclusively on installations has created a space where concern for customers, employees and the community at large has led to a growing demand for its services.

KESS covers the state if needed, but only a few times a year will crews go beyond the nine counties surrounding the state capital of Montgomery, says Shane Duncan, owner. The company does have one crew outside that core area. It's based about 100 miles away near Birmingham. KESS technicians also go into the city of Montgomery because the municipal sewer doesn't reach everywhere, and many properties depend on onsite systems.

Installations consist largely of ATUs from Clearstream Wastewater Systems based in Lumberton, Texas. To complete the system they usually add subsurface dripline.

"We're in the Black Belt," says David Mastin, company manager. "It's sometimes called prairie mud. It is dirt that does not perc — period."

The name Black Belt comes originally from the soil present when the land was first cultivated. The soil was rich and black, and it led to the establishment of plantations. By the middle of the 20th century, the good black soil was gone because of poor farming techniques.

Dripline goes in 6 to 8 inches below grade and is typically zoned into sections for dosing. The saying in Alabama is that anything deeper than 4 inches is below the frost line.



◀ The KESS Environmental Services team includes (from left) Greg Foley, Michael Rush, Sears Smith, David Mastin, Dylan Green and Shane Duncan. In the background are a Caterpillar excavator and skid-steer. (Photo by Jeff and Meggan Haller)

⚡ Shane Duncan operates a manual flush valve on an Adenus Technologies HAWK Series control panel that is part of a large decentralized system serving five neighborhoods.

MOSTLY INSTALLS

Installations are 80 percent of the work at KESS. Another 10 percent is pumping, and the remaining 10 percent is everything else the company does such as managing a community wastewater system in a subdivision of about 700 homes.

In that subdivision, every home has its own 1,500-gallon tank. Wastewater flowing out of a tank is filtered before flowing to a lift station that serves a group of homes. The station pumps water to a 10-inch force main that ends at a wastewater treatment plant.

Maintenance of ATUs is another part of that 10 percent. Under Alabama law, all advanced systems must have a maintenance contract for the first two years after installation. KESS technicians will blow out clogged lines, clean filters, check air compressors, and do everything else the manufacturer recommends. After that, homeowners are free to do what they wish with their systems, but most of them keep their contract with KESS, Mastin says.

“By doing so, it prolongs the life of the system. People don’t understand they have to clean those filters that started being required in 2006,” he says.

Marketing is not a major emphasis for the company. They are starting to use Facebook more often, Duncan says. “But to be honest, we don’t advertise a whole lot. The company has been around a long time, and everybody knows the name,” he says.

Mastin says he started working to increase Facebook exposure, but the company picked up so much work that he hasn’t pushed hard on it.

KESS Environmental Services

Location: Opelika, Alabama

Owner: Shane Duncan

Founded: 2001

Employees: 15

Service area: State of Alabama, with the core area around Montgomery

Services: Residential and commercial onsite installation, pumping, new infrastructure, force mains, pipelines, maintenance, inspections

Affiliation: Alabama Onsite Wastewater Association

Website: www.kessenvironmental.com



◀ David Mastin discusses a project with crew member Mike Burke.

▲ David Mastin prepares to change an Arkal Spin Klin 140-micron mesh disc filter (Amiad USA) that cleans treated water for ground injection at a large Alabama cluster system.

“It’s because of a single principle: You take care of people, and they’ll take care of you,” he says.

Duncan and Mastin are trying to expand the pumping division, management of private systems, and repairs. They are planning for a new vacuum truck, larger than the one they have and with capacity to handle bigger jobs, and they would like to make pumping available 24/7 because they see a niche to fill. All the pumpers in their area are overwhelmed with work, Mastin says, and because many are one-person operations, they have a limited ability to offer service after hours or on weekends.

HELPING HAND

Sometimes technicians will travel across the state to do work for no money. It’s part of the company’s ethics, Mastin says. “Any profession ought to give back a little bit. We’re big and give more,” he says.

They do this under the TRAC (Technical Review and Advisory Committee) program of the Alabama Onsite Wastewater Association, which Mastin serves on. TRAC arranges for low-income homeowners to receive new onsite systems at no cost to them. Manufacturers donate material, installers donate their time and the work gets done. KESS handles three to five of these jobs each year.

There is a benefit to the company in terms of knowledge. If, for example, Infiltrator Water Technologies donated the tank and chambers, a factory representative is usually on hand for the project, Mastin says. Then the installation becomes a training opportunity for technicians who can learn tips and tricks directly from the equipment manufacturer.

“I’m real big on education. I love it when these reps come out. They know a lot more than we do about how their product works and how we can work with it,” Mastin says.

EQUIPMENT LIST

A busy company like this keeps a lot of gear on the road. KESS uses:

- Two Cat excavators, a 2014 308 and a 2014 305.5
- 2011 Kubota excavator
- 2009 Wacker Neuson 8003 excavator
- 2016 Cat 259D skid-steer
- Kubota SVL 90 skid-steer
- 2014 Kubota farm tractor with an end loader, brush hog and other accessories
- 1996 Mack vacuum truck with a 2,500-gallon steel tank and a Wittig pump (Gardner Denver)
- A variety of Dodge, Ford and GMC pickups and service trucks

“We have a bunch of trailers,” Duncan says. “Every piece of equipment has its own trailer so you don’t have to go back and forth.”



“Yesterday was graduation, so a few of our people went to watch their kids. They give us a lot of hard work every day and make this company go, so they deserve that time.”

Shane Duncan

They also have a parts trailer with pipe racks and other racks on it. Three trucks have fuel cells to refill machinery on site. Fuel tank capacities range from 50 to 80 gallons.

Aside from a larger tank, a new vacuum truck will be equipped with a jetter. That will help technicians maintain lift stations more easily and will avoid the need to hire someone else to bring a jetter to a job, Mastin says.

TREAT WORKERS RIGHT

After one year with KESS, employees receive a week’s vacation and one week of sick time. That doesn’t mean technicians work the rest of the time.

“This company is like a family,” Duncan says. “We encourage our guys not to miss events their kids have. Yesterday was graduation, so a few of our people went to watch their kids. They give us a lot of hard work every day and make this company go, so they deserve that time.”

Employees also receive a few days of paid time off at Thanksgiving and Christmas.

“They also know that if they do their jobs and work hard, I’ll give them the rest of a day with pay if they need it,” Duncan says.

“We also have a rule we try to follow: If we hire you, it’s going to be a lifetime hire,” Mastin says. Workers may leave, but it will be their choice, and KESS works to keep its crew lean so there are no layoffs.

They don’t offer health insurance or help with it — yet. It’s something they would like to do for their workers, Duncan says.

Mama always said...
“It’s what’s on the inside that counts!”



1899 Cottage St. □ Ashland, OH 44805 □ 855 281-6830 □ ashlandpump.com

» David Mastin, right, works with Michael Rush installing a new PVC line for a septic system.



A POWERFUL MENTOR

When his father died, David Mastin gave up his 13-year career as a deputy sheriff and stepped into his father's pumping company to help his mother. He found his own help in the person of Danny Brown, a retired U.S. Navy officer and founder of KESS Environmental Services.

"Danny Brown took me under his wing. When I started installing, Mr. Brown came to me, gave me keys to his equipment and said he would help in any way possible. He invited me to all his job sites. He's real big on education and teaching people. My workers would be working, but I'd get in his truck and we'd go to one of his jobs. He would say, 'Do you understand why this dirt is no good?' It blew my mind that my competitor is teaching me everything," he says.

The same was true for Shane Duncan. He had a homebuilding company and met Brown when KESS installed onsite systems in the subdivisions he worked on.

"Danny's whole outlook in life is he wants to help others succeed," Duncan says.

One day Duncan jokingly told Brown that he would buy KESS. A few years later, that came to pass when Brown decided to sell. Mastin is now the general manager of KESS, and his A-Z Pumping Services handles pumping for the company.

"I think he foresaw the future for two younger guys to work together. He sort of put us together with lunches and things," Duncan says. "He takes care of us and makes sure we're doing the right thing."

They learned by Brown's example.

"I invite every installer to our job sites," Mastin says. "We sell Clearstream Wastewater systems but encourage them to come and see how the work is done. We also invite health department inspectors to come out and get their hands in the dirt and learn. We're trying to continue what Mr. Brown started."

On the workers' side there are also expectations and responsibilities. Part of their raises depends on improving themselves.

"We encourage you to get your septic installation license," Mastin says. "When you start wanting to take over a crew, we offer you a slot at the school if you want to take it. With that slot, we pay for your school, we pay for your hotel, we pay for your testing, we pay for everything. And then on top of that, you'll get a raise because in our minds that means you've taken the step: You want to better yourself."

Every year they take as many workers as possible to a regional trade show, even the unlicensed workers, so they can meet vendors and see products.

Crew leaders get a truck to drive, and they're required to earn their CDLs so they can tow machinery, Duncan says.

Employees also receive raises for hard work and bonuses from big jobs.

All of that means no turnover. KESS has hired several technicians in 2018, but it's because the amount of work is increasing.

In addition to Mastin and Duncan, the company depends on three crew leaders. The two primary leaders in Montgomery are Sears Smith and Greg Foley. Smith is the senior leader and watches everything. Foley oversees the technical side and troubleshooting. He's the guy to call when there are lift station problems, Duncan says. Dylan Green is the senior leader who works with the northern crew in St. Clair County near Birmingham where he handles utility management and installations.

continued »



**THE BACK YARD
AND BEYOND**

ANCHORING THE NATION'S WATER INFRASTRUCTURE

Precast concrete water and wastewater systems have traditionally been the reliable and trusted resource for residential wastewater treatment. Precast systems also go beyond the back yard, anchoring wastewater infrastructure with tailored community, commercial and municipal systems that collect and treat wastewater and protect our environment.

Whether in the back yard, or in the community, you can count on precast concrete wastewater structures for unmatched strength, durability and service.

We're local.
We build infrastructure.
We're **precast proud.**

PRECAST PROUD™



Find local precast producers at: [precast.org/find](https://www.precast.org/find)
Learn more about precast on-site wastewater tanks at [precast.org/onsite](https://www.precast.org/onsite)



◀ David Mastin, left, and Shane Duncan prepare to inspect a screen in one of the company's large-flow lagoons that are part of a cluster system in Pike Road, Alabama.

“At the end of the day, this is where my kids are playing, in the streams and rivers. I don't know which family doesn't like going to the beach, and I hate to say it, but we're north of the beach and that's where our water ends up.”

David Mastin

Duncan and Mastin also depend on these three leaders to train people as they work on jobs. Safety training is emphasized almost every day and formally in monthly talks about safety issues.

LIVE TO SERVE

Service defines KESS, whether it's service to employees or customers, or even to people who don't live in the area. That's one reason why Duncan and Mastin support the TRAC program — because there are consequences for everyone.

“At the end of the day, this is where my kids are playing, in the streams and rivers. I don't know which family doesn't like going to the beach, and I hate to say it, but we're north of the beach and that's where our water ends up,” Mastin says.

Both he and Duncan fish, hunt (ducks, deer and the occasional alligator) and do other outdoor recreation. “So we're huge on taking care of our resources because they're going to take care of us,” Mastin says.

“It's not about the competition. It's about doing the right thing for the customers and the environment. It's about taking care of the people,” Duncan says.

Mastin and Duncan are not only successful, but unwilling to keep success to themselves, and that is good for everyone involved — for themselves, their employees, the industry and their community.





T&T Tools, Inc.

800.521.6893

Probes ▼ Hooks **T&T Tools, Inc.** Probes ▼ Hooks



Hooks...

- ★ Heat treat for long life
- ★ Manhole Cover Hooks
- ★ Septic Tank Lid Hooks
- ★ Many styles available
- ★ “T” handles for two hands or compact “D” handles



BOOTH
5063

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
www.MightyProbe.com
Email: sales@mightyprobe.com Fax: 800.521.3260

featured products

Adenus Wastewater Solutions
 888-423-3687
www.adenus.com

Amiad USA
 800-243-4583
www.amiadusa.com

Clearstream Wastewater Systems, Inc.
 800-586-3656
www.clearstreamsystems.com

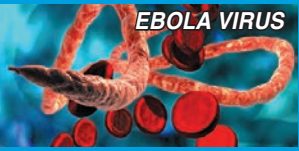
Gardner Denver Inc.
 866-428-4890
www.gardnerdenver.com/gdproducts

Infiltrator Water Technologies, LLC
 800-221-4436
www.infiltratorwater.com
 (See ad on page 3)

WHY SALCOR UV DISINFECTION NOW?



MRSA BACTERIA

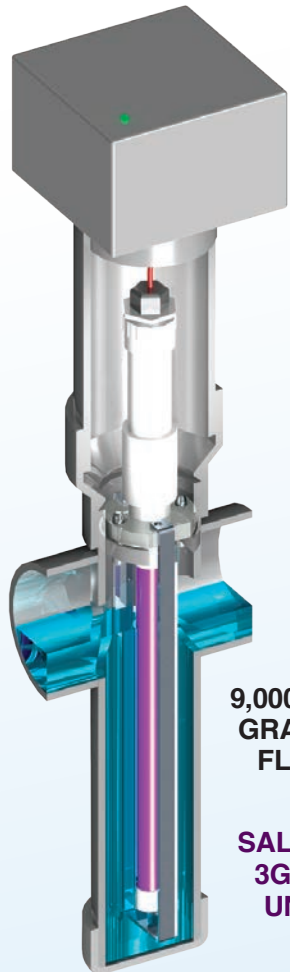


EBOLA VIRUS



KLEBSIELLA BACTERIA

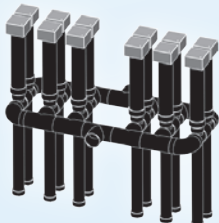
HELPS COMBAT RISING "SUPERBUG" CRISIS
SAVES HEALTH & PRISTINE ENVIRONMENTS
SURVIVES MOST WEATHER "CATASTROPHES"
ENABLES REUSE OF DISINFECTED EFFLUENT



9,000 GPD
GRAVITY
FLOW

SALCOR
3G UV
UNIT

MODULAR BLOCK DESIGN



12 UNIT UV ARRAY
3G'S IN PARALLEL/SERIES
ARRAYS TO 100,000+ GPD

UL & cUL LISTED

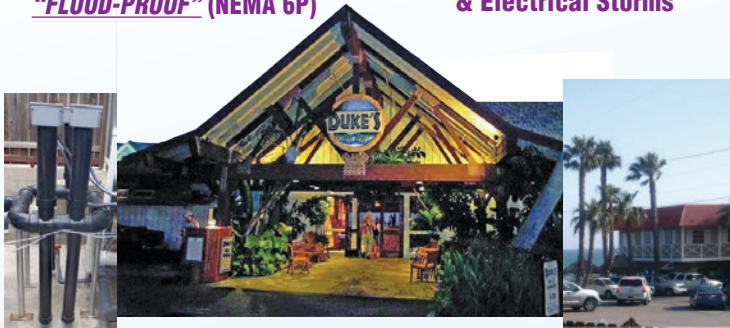


30-Day Underwater Proven
"FLOOD-PROOF" (NEMA 6P)

SURVIVES



Hurricanes, Floods
& Electrical Storms



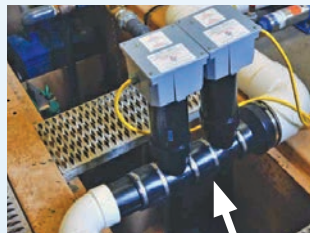
DUKE'S OCEANFRONT RESTAURANT, Malibu, CA
4 UV Unit Array Effluent Discharges into Ocean Beach Sand

ELEMENTARY SCHOOL, MO



3 Salcor 3G UV
Units (Parallel Array)
in Extended Aeration

NURSING HOME, OH



2 UV Unit Array Replaced
Chlorine Chamber

- Residential/Commercial Wastewater Onsite Decentralized Uses to 100,000+ GPD
- Modular System - Less Costly and Reliable Tested Performance
- Expanded Arrays Reduce Spare Parts Inventory & Increase Flow
- Originator of "Revolutionary" Foul-Resistant Teflon® Lamp Barrier
- Most 3rd Party Successfully Tested (since 1997):
UL Listed; **NSF/WA State** Fecal Coliform Tests, 6-Mo Each with 21 ATU's;
BNQ Canada;
Universities - U of Washington, Ohio State U, UC Davis, & U of Rhode Island
- Low Cost <40 Watts & Easy Install (In Ground or Pump Tank) & O&M
- **No** Chemicals Added and Enables Water Recovery/Reuse
- Reliable LED Visual Monitoring & Alarm Contacts
- 2-Year Warranty, Unit & "Long-Life" Lamp

"3G" UV ONSITE UNIT, TRUSTED WORLD LEADER FOR 22 YEARS

SUCCESSFULLY TREATS: Single & Cluster Homes, Small Sewage Plants, Schools, Hospitals/Nursing Homes, Churches, Restaurants, Mobile Home Parks, Campgrounds, Nurseries/Cut Flowers, Houseboats, Food Processing Wastewater, Etc.



SALCOR
SINCE 1978

jscruver@aol.com
760.731.0745 F: 760.731.2405

Lay Pipe Correctly and Save Headaches Down the Road

Take into account these important considerations when connecting components downslope from the dwelling

By Jim Anderson and David Gustafson

A homeowner recently sent in a question about the installation of an onsite treatment system. The system was going to be installed quite a distance downslope of the house and the homeowner wondered if special precautions should be taken in terms of the piping from the house to the septic tank and the system.

The answer is yes, precautions should be taken when laying piping between components from the house to the septic tank. Some of them are just part of good pipe installation, and a few precautions are directly related to the steep slope.

In terms of good pipe installation, the trench the pipe is laid in should be at least twice the pipe diameter. In the case of 4-inch PVC sewer pipe, the trench should be at least 8 inches wide. This is usually not a problem because backhoe and mini-excavator buckets are commonly at least a foot wide. This allows the pipe to snake from side to side in the trench to account for natural pipe expansion and contraction.

Any debris from excavation should be removed from the trench before the pipe is laid. **If there are rocks, bedrock or soil hardpans in the trench bottom, the pipe should be bedded in a well-graded, compacted granular material.**

PROPER BEDDING

Any debris from excavation should be removed from the trench before the pipe is laid. If there are rocks, bedrock or soil hardpans in the trench bottom, the pipe should be bedded in a well-graded, compacted granular material. This not only supports the pipe, but also keeps trench-wall soil from entering the trench. Check your local regulations for any required bedding specifications and, of course, follow those requirements.

In general, if coarse granular material is used, it should be placed below and up to the midpoint of the pipe to provide support below and on the sides of the pipe. This also ensures support is not lost over time by migration of finer material into the bedding. Depth of the bedding material from midpoint of the pipe to the bottom of the trench is usually 6 inches.

The trench is then backfilled with clean soil free of rocks and debris — usually in at least two stages — taking care not to deflect or damage the pipe during the backfill process.

The recommended slope for 4-inch diameter PVC pipe carrying raw sewage is between 1 inch in 8 feet to 1 inch in 4 feet. Having pipe slopes in this range ensures enough slope on the pipe to provide the required velocity through the pipe to carry both water and solids. If the slope is not steep enough, the velocity will not be high enough to scour the pipe, which could lead to constant pipe blockage. If the slope is too steep, water will essentially flow ahead of the solids, leading to pipe blockage. Under either condition, the homeowner will be faced with the continued expense and exasperation of having someone clean the pipe.

For the condition described by the homeowner, in which there is a steep slope from the house to the tank, the pipe will require one or more slope breaks to maintain flow and drop the elevation. This is typically done using elbows. At each of these break points, a clean-out should be installed that is readily identifiable and brought to the surface in case there are plugging problems.

CLEAN-OUT CLUES

A couple of comments about clean-outs: They should be the same size as the sewer-line pipe, up to 4 inches, and at least 4 inches for larger diameter pipe. For 4-inch PVC pipe, the distance between clean-outs should be no more than 100 feet. Clean-outs can either be one directional or two directional. From our perspective, two directional is a better choice because the pipe can be jetted or snaked in two directions. However, site characteristics may dictate the choice.

We always recommend that a clean-out be installed near the outside of the residence where the sewer exits. It should be made with a full Y fitting. This allows the service provider to clear blockages in the line without having to enter the residence.

Riser pipes for the clean-out should be the same size in terms of pipe-wall thickness and material. All necessary fittings should also be of the same material and consistent sizes. As indicated earlier, any clean-out should be brought above the surface so it is easily accessible to the service provider. The cap on the clean-out should be threaded, and some codes require that the cap be provided with a raised nut or recessed socket for removal. Access to the clean-out should be in a protective enclosure such as a valve box. □

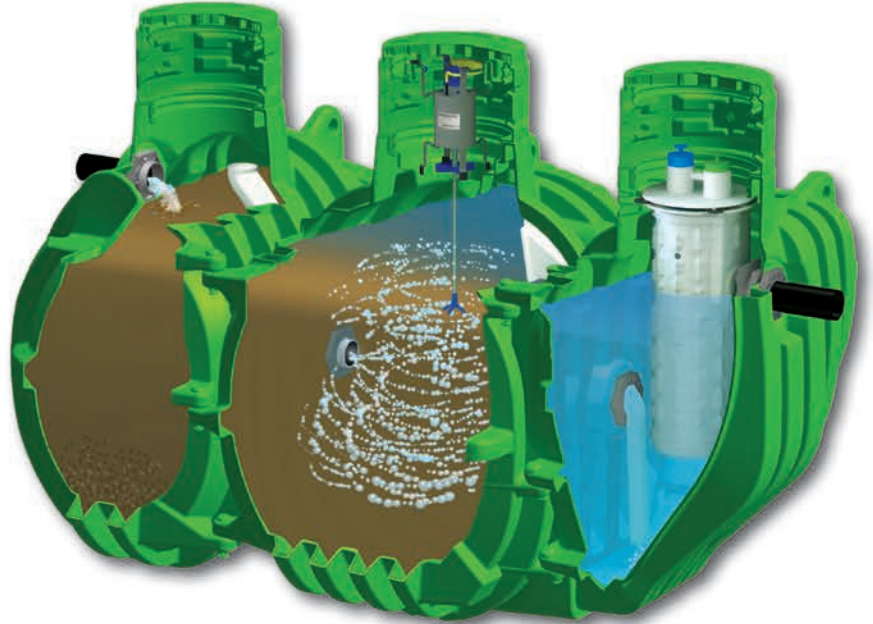
STAND OUT from the competition with a company that does the same

norweco[®]

Engineering the future of water and wastewater treatment

WHY PARTNER WITH NORWECO?

- 💧 **SAVE TIME & MONEY:** No wait with Singlair Green; set your own schedule.
- 💧 **NEW PRODUCTS:** We think of it before you need it.
- 💧 **INTEGRITY:** Tested and certified products backed by an experienced team of experts.
- 💧 **PROFITS:** Insure your future growth and success by partnering with the proven industry leader.



Visit **Team Pink** at WWETT booth #2641 to learn more

1-800-NORWECO
email@norweco.com
www.norweco.com





Moving Dirt and Pouring Concrete

Olmstead Contracting pulls out all the stops for massive gravity flow system replacement at a Connecticut transitional living facility

By Scottie Dayton

Percolating wastewater with occasional backups into wards was a constant concern for officials at a transitional care facility in Southbury, Connecticut. During those flare-ups, neighbors complained about the odors.

In 2015, the 134-bed facility was purchased by Sheehan Health Group, which hired BETA Group to renovate the onsite system. Bob Baglini, P.E., specified Geomatrix Systems products, and installer Joe Olmstead, owner of Olmstead Contracting in Wolcott, won the general contractor bid.

Work began in October 2016 and finished in November 2017. A record spring snow and heavy rains delayed the drainfield's installation until July 2017, making it a race to beat winter again.

Site conditions

Soils are sandy loam to fine silt with a loading rate of 0.27 gpd per square foot. The seasonal high water table is 36 inches below grade.

System components

Baglini designed the system to handle 15,000 gpd. Major components are:

- Two existing 2,000-gallon grease interceptors.
- Existing 12,000-gallon triple-compartment concrete septic tank.
- Two existing 6,000-gallon dual-compartment concrete septic tanks; the second tank with 16-inch SaniTEE effluent filter (BioMicrobics).
- Existing 6,000-gallon pump chamber with two WE2038H 2 hp pumps (ITT Goulds Pumps).
- Manhole with magnetic flowmeter and 1/3 hp sump pump (Zoeller).
- 20,000-gallon cast-in-place dual-compartment pump/equalization tank.
- Six 80DLMF 3 hp pumps (EBARA Pumps Americas).
- Six RF 29450 4 hp SoilAir blowers with microprocessor controllers (Geomatrix Systems).
- 3,240 feet of GST-6212 gravel-stone trenches (Geomatrix Systems).
- Stainless steel control cabinet with telecommunications (Geomatrix Systems).

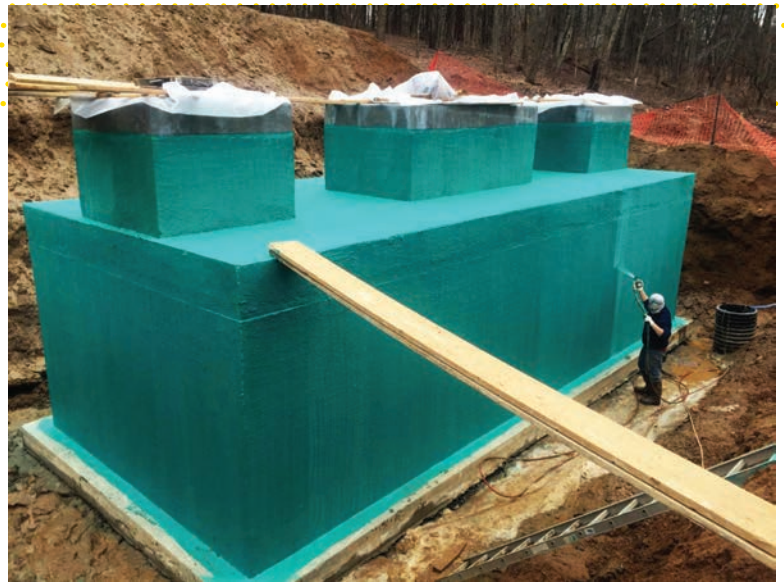
System operation

Wastewater flows through the septic tanks to the first pump chamber. From there, it's pumped 800 feet through a 3-inch force main to the flowmeter vault, then to the pump/equalization chamber. Inside the chamber, six pumps discharge through dedicated 3-inch force mains passing through two 6-foot-diameter precast valve vaults behind the tank. The valves prevent backflow.

◀◀ Joe Olmstead of Olmstead Contracting uses a Komatsu PC200LC tracked excavator and Topcon Positioning Systems laser to grade the bottom of the 14-foot-deep excavation.

▶▶ A worker from Northeast Rubber Wall waterproofs the tank's exterior with Rub-R-Wall spray-on foundation coating (Rubber Polymer Co.).

✔ Workers from Olmstead Contracting complete the formwork for the poured-in-place, 34- by 12- by 9-feet-high 20,000-gallon dual-compartment pump/equalization chamber.



The force mains angle around the side of the tank and run 585 feet back toward the building to the six-zone drainfield, almost half of which is under a parking lot. Zones one through five each have a 270-foot-long GST trench on either side of a 6-inch manifold feeding three 90-foot sections of 2-inch perforated pipe per trench. The 3/16-inch orifices in the pipes are spaced 4 feet apart.

Zone six has three 180-foot-long trenches with two on one side of the manifold. Only five of the six rotating zones operate daily, each receiving three 800-gallon doses at 122 gpm.

Pairs of dedicated blowers set between zones connect to the distribution manifolds with 4-inch aeration piping. "Part of the renovation was to lower nitrogen levels, and the blowers oxygenate the anoxic effluent, enabling robust colonies of microorganisms to control the biomat," Olmstead says.

Pump chamber installation

Olmstead's crew cut, stumped and graded a 2-acre woodlot, pushing topsoil into a corner with a Dresser TD8 bulldozer. Olmstead operated a Komatsu PC200LC tracked excavator, his brother Billy Olmstead operated a Clark Michigan 125C wheeled front-end loader, and Mauricio Loja (foreman) ran the Komatsu PC88MR tracked excavator. Joe Olmstead terraced and sloped the bank to create a flat area for the cast-in-place 34- by 12- by 9-foot-high pump chamber.

"To avoid digging deeper into the water table, the engineer designed the tank wider than usual," he says. "Luckily, we had a record drought that October and didn't hit water until we were down 12 feet." A wellpoint dewatered the 14-foot-deep excavation.

Olmstead lowered Loja and the PC88 excavator into the hole to grade the bottom and build the 24-inch-high bed of 1.25-inch stone. Two Mack R-series tri-axle dump trucks with 18-cubic-yard Bibeau Hardox boxes transported materials.

Olmstead's crew built the formwork for the 36- by 16- by 1-foot-thick pump chamber slab, then poured the concrete supplied by O&G Concrete.

System Profile

Location: Southbury, Connecticut
Facility served: 134-bed transitional care facility
Designer: Bob Baglini, P.E., BETA Group
Installer: Joe Olmstead, Olmstead Contracting
Type of system: Gravity-flow sand filter mound
Site conditions: Sandy loam to fine silt, loading rate 0.27 gpd per square foot, seasonal high water table
Hydraulic capacity: 15,000 gpd



▲ Jose Vazquez (left) and Alfred Brown from Olmstead Contracting compact C-33 sand with the D-grip handles on their shovels.

SYSTEM PROFILE



Using a Komatsu PC88MR tracked excavator, Mauricio Loja from Olmstead Contracting places 3/4-inch stone in the open finger compartments while Jose Vazquez and Alfred Brown help with their shovels. Note the container used to keep stone and sand clean.

“Part of the renovation was to lower nitrogen levels, and the blowers oxygenate the anoxic effluent, **enabling robust colonies of microorganisms to control the biomat.**”

Joe Olmstead

“The slab and pump chamber have more epoxy-coated steel rebar in them than I have ever seen,” Olmstead says.

The workers built the tank formwork with 1-foot-thick walls. To ensure mortar filled the voids, one person stood on top of the form flipping the vibrator switch on and off, while his partner raised and lowered the vibrator into the cement. “Not hitting the steel was the hardest part,” Olmstead says.

Tank lid and risers

The poured-in-place 1-foot-thick tank lid required 7/8-inch-diameter coated rebar, which Olmstead drove 90 miles to pick up in Brooklyn, New York. Meanwhile, his crew built supported floor joists on top of the tank, boxed out three openings for the four risers (two are adjacent), and laid a 3/4-inch-thick plywood floor. They topped the 4-foot-high concrete risers with 4-foot-square Nystrom aluminum double-leaf floor doors. The risers are

12 inches above grade to prevent infiltration and people driving over them.

After the pump chamber was hydrotested in May 2017, Olmstead’s team mixed AQUAFIN-1K, a cementitious waterproof coating (AQUAFIN), with water in a wheelbarrow, dampened the tank’s interior faces, rolled on the coating, then dampened the walls again to facilitate absorption of the product. Once it dried, they installed quick disconnect stainless steel rails in the tank and mounted the pumps on them. A worker from Northeast Rubber Wall waterproofed the tank’s exterior with Rub-R-Wall spray-on foundation coating (Rubber Polymer Co.).

“We core-drilled a total of 16 penetrations in the tank and risers,” Olmstead says. “When it was time to backfill, I pumped 6 feet of water from the hole.”

Over the next two months, the crew poured a 12.5- by 7- by 1-foot-thick concrete slab, then Industrial Riggers lowered the control cabinet, 40-kW emergency generator (Ingersoll Rand), and a transformer (Eversource Energy) with a crane. C & H Electric wired everything.

The crew set two 6-foot-diameter precast manholes behind the pump chamber and a third one after the first pump chamber. They installed air-release valves, 3-inch gate valves, check valves and diaphragm pressure gauge assemblies in the two valve vaults and the magnetic flowmeter in the third manhole.

continued >>

THE COMPLETE PACKAGE

Pressure effluent sewers are a perfect solution for communities, developments, and other clustered systems.

- Filtered STEP vault
- Control panel
- Turbine pump
- Discharge assembly

CLARUS 
ENVIRONMENTAL

A Division Of Zoeller Company

1-800-928-7867 | clarusenvironmental.com



THIS IS WHAT IT WOULD LOOK LIKE IF WE PRINTED ONSITEINSTALLER.COM
— THOUSANDS OF STORIES, PRODUCTS AND IDEAS

ONSITE installer

GET ACCESS TO EVERYTHING WE CAN'T FIT IN THE MAGAZINE. ADDITIONAL STORIES, VIDEOS, NEWS BRIEFS AND OTHER GREAT INFORMATION THAT LETS YOU GET THE MOST OUT OF *ONSITE INSTALLER*.

WWW.ONSITEINSTALLER.COM

SPI
SEPTIC PRODUCTS INC

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



Email sales@SepticProducts.com

Website SepticProducts.com

Drainfield preparation

The original drainfield had 2,200 feet of 4-by-4-foot concrete galleys in 27 rows. “The main body of 80-foot laterals was installed years ago,” Olmstead says. “The more recent laterals toward the back are 52 to 124 feet long and jammed in at different angles and elevations. Much of the new drainfield overlaps these trenches.” The field has 13 laterals in six zones.

Beginning in July, the pressure was on to install zones one and two and switch the building to the new system. These zones overlapped three rows of laterals, each with three 6- to 8-foot-deep trenches. The day before workers tore out a row, Olmstead dug a pit through the biomat, lined the hole with 3/4-inch stone, installed a sewage pump, and pumped the draining wastewater to the back galleys, which still functioned.

“My two dump truck drivers hauled in sand for the GST trenches and removed a total of 3,000 cubic yards of spoil,” says Olmstead, who crushed and loaded the galleys and the biomat onto the trucks before scarifying the soil. Billy Olmstead followed, adding 4 to 6 feet of septic sand. Over this went leveled common fill on which Joe Olmstead laid out the laterals’ centerline with a paint gun and Topcon Positioning Systems laser level.



▲ Jose Vazquez from Olmstead Contracting lays 15-mil Stego Wrap vapor barrier over geotextile fabric to prevent air from escaping.

Drainfield zones

Jose Vazquez, Alfred Brown and Loja installed the GST trenches. The 62- by 52- by 12-inch-high removable steel forms have a 12-inch-wide center channel with 13 4-inch-wide fingers branching off either side. The fingers increase the sidewall surface area by more than six times that of traditional stone trenches, and they enhance oxygen transfer efficiency.

Billy Olmstead filled one 8-cubic-yard container with 3/4-inch stone and another with C-33 sand to keep the materials clean, while Joe Olmstead set six GST forms in the first trench. After Vazquez covered the center channels and alternating stone fingers, Loja dumped sand on the forms to fill the open compartments and spaces between the forms and trench walls.

“We compacted sand and stone with the D-grip handles on our shovels,” Olmstead says. “This isn’t a hard compaction.” After Vazquez removed the covers, Loja filled the center channel and remaining fingers with stone, then pulled the form and leapfrogged it to the front of the line.

Once the trench length was installed, the crew laid 2-inch piping on top of the fingers and teed it to the 6-inch manifold in the channel. The manifold reduces to 3-inch pipe back to the pump chamber. Vazquez covered the trench with geotextile fabric to protect the stone, then added a layer of 15-mil Stego Wrap vapor barrier to prevent air from escaping.

“When we switched on zones one and two, they handled the entire flow while we finished zones three through six,” Olmstead says.

When installed, the parking lot would cover 210 feet of zones three through five. Those trenches were backfilled with 12 inches of compacted gravel road base to make them H-20 traffic rated. Trenches under grass were backfilled with sandy loam and covered with 6 inches of topsoil.

Olmstead’s crew completed the drainfield in October 2017. In November they completed the project by installing the parking lot. “We poured concrete pads around the clean-out manholes to prevent snowplows from

shearing them off, releasing a geyser of sewage,” Olmstead says.

On May 15, 2018, a tornado devastated Southbury. The emergency generator ran the onsite system for a week.

Maintenance

The facility’s maintenance worker monitors the system and management hired a service provider. □

featured products

BioMicrobics, Inc.
800-753-3278
www.biomicrobics.com
(See ad on page 9)

EBARA Pumps Americas Corporation
803-327-5005
www.pumpsebara.com

Geomatrix Systems, LLC
860-510-0730
www.geomatrixsystems.com

Ingersoll Rand
704-655-4000
www.ingersollrandproducts.com

ITT Goulds Pumps
315-568-2811
www.gouldspumps.com

Topcon Positioning Systems, Inc.
925-245-8300
www.topconpositioning.com

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

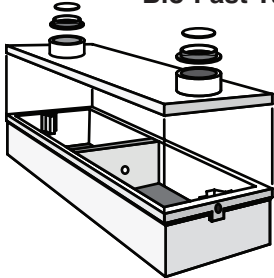
Water Tight Structures 2 Compartment

Commercial Sizes - Gallons

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

Water Tight Construction
Tanks meet ASTM C1227 and C913

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



Nationwide Service

CREST Precast, Inc.
PCI & NPCA Certified Plant
1-800-658-9045

www.crestprecastconcrete.com info@crestprecastconcrete.com

SIM/TECH FILTER

The Last Line of Defense
for Pressurized Distribution Systems

NO VAULT PUMP FILTER

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



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

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

THE STF-100 SERIES PRESSURE FILTER WILL:

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

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

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



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



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



Seal-R Lids, Rings & Hinge Systems

(Hinges Available On 24"-42")

Customized Lids

Add Your Company Name

Get the Exact Size for Each Job!

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

- 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!



BrenLin Company, Inc

Manufacturers of Seal-R™ Products

888-606-1998 | www.seal-r.com

ORIFICE SHIELDS



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

FLOAT TREE ACCESSORIES

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



Check Out Our Other Quality Solutions!

Risers, Security Nets, Clean-Out Sweeps, etc.

gag-simtech.com
888-999-3290

SIM/TECH
FILTER

Pennsylvania Installers Need Streamlined Approvals for New Technology

Industry advances are stymied by a state government slow to adapt to advanced onsite systems proven to work in other regions

Compiled by Betty Dageforde

In States Snapshot, we visit with a member of a state, provincial or national trade association in the decentralized wastewater industry. This time, we learn about a member of the Pennsylvania Septage Management Association.



Ned Lang
president

Business:
Enviroventures,
Narrowsburg, New York,
and 10 Roto-Rooter
franchises in the area

Age: 57
**Years in
the industry:** My father
bought his first Roto-Rooter
franchise in 1960 when I
was born, so I grew up in the
industry. And then I bought my
parents out in 1985.

Association involvement:

I've been involved in the Pennsylvania Septage Management Association since its inception around 1985. It was originally called the Pennsylvania Liquid Waste Haulers Association. I'm currently a vice president. I was the Region 3 representative for many years.

Benefits of belonging to the association:

The benefits are boundless. The association has so much great representation. I've done a number of citizen lobbyist days down in Harrisburg with our lobbyist. You get to meet a lot of the powers that be, both the House and the Senate, both the Republican and Democratic leaders, meeting them face-to-face and bringing forth the issues of our membership — and basically the issues of the public because we do represent the public since 44 percent of the people in Pennsylvania use onsite septic systems. Anything that affects them, the Pennsylvania Septage Management Association is on top of. There are so many facets to the

association that if you're in the on-lot septage industry or doing land application, you definitely should be part of it.

Biggest issue facing your association right now:

Staying on top of the regulatory climate in Harrisburg is critical. Some so-called environmentalists try to get different regulations passed that are confounding and against good commonsense practices as far as either the operation of on-lot septic systems or the disposal and treatment of septage and biosolids. A current proposal would require operators to go through a hearing process if they wanted to land-apply in an area, which I think is nothing more than a lot of emotional ruckus. The process is fantastic, and it's the best resource recovery program in the country. It completes the nutrient circle of life because as the products are taken off the farm, they're consumed, then the residuals from that consumption (your septage and biosolids) are then placed back on the farmlands.

Our crew includes:

We have two partially retired drivers who have been with me 20-plus years and 18 full-time people. They're all fantastic and do a great job.

Typical day on the job:

I usually get out of bed around 5:30 a.m., exercise, then get to work around 7 a.m. Some days when we run to the landfill, we're on the road by 5 a.m. Then the customers get called, we review the jobs from the previous day if there's anything that still needs to be done today, we take care of any mechanical issues and then dispatch everybody out. Then I do my bookwork. By noon I like to be where I can either go out and look at jobs or I'm in a truck taking biosolids to the farms.

The job I'll never forget:

The most memorable job happened when I was about 8 years old on a job with my father pumping out a restaurant customer's cesspool. We were on the side of a hill. We didn't have vacuum trucks back then; we had these centrifugal pumps, and if they sucked air, you would lose the load. My father was checking to see how full the truck was, and I was down pumping the tank. I must have lifted the hose out of the cesspool, and as soon as that air went up and hit that pump, it immediately lost compression and suction. The owner was standing on the other side of the septic tank, and suddenly

EZconnex® 4-PORT SYSTEM

Revolutionary Float Switch Connection System

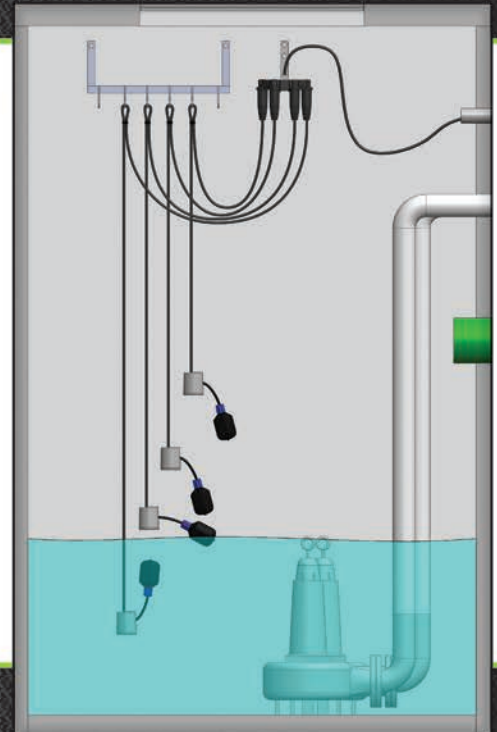
Installation is as easy as 1, 2, 3...Simply install the manifold, plug in the floats, and wire the manifold cable to the control panel. The color-coded cable makes for a quick, clean installation! The quick release float switch connections allow for easy maintenance and replacement of floats, saving installers time and money...up to 75%! Many float switch options and 3-port manifold available to suit your needs!



- Simple, clean installation
- Up to 4 quick release floats
- Mounts directly in riser
- Great for new and retrofit applications
- Easy maintenance



US Patent No.
9,559,455 and 9,583,867
Foreign Patents Pending



www.sjrhombus.com



all that product came flying down out of that 3-inch hose. It actually set me back, and the hose lifted and hit the guy and knocked him down the hill. The poor guy, he was just full of sewage.

My favorite piece of equipment:

I really enjoy excavators. We've got a John Deere 590, John Deere 27, Caterpillar 312 and Komatsu 75. They're just fun to operate. You can do so many things. The smaller ones have blades on them so you can grade a whole lot easier. They can do so much work in tight places. It just makes your life a lot easier.

Most challenging site I've worked on:

We used to do work for a Sorrento cheese plant when they were here. One time, they had a broken line in their cheese processing area. It was a really tough job. We had to shut down their process. Then we cut about 40 or 50 feet of the concrete floor where all of their processing equipment was and installed a whole new pipe because the other one had rotted out. We couldn't reline pipes back then, but it would have been tough anyway because there were a lot of laterals. We shut the plant down at 3 p.m., and by 11 a.m. the next morning, we had everything done — the floor cut, jackhammered, the line removed, a new line put in, everything hooked up, concrete put back — and they were operating again by 2 p.m. We had 15 or 20 guys in there just going crazy.

The craziest question I've been asked by a customer:

We get asked to retrieve rings from down the drain. It's usually a really expensive ring or maybe they're newlyweds. They set the ring on the side of the sink and all of a sudden it's down the drain. We go down there with video inspection equipment. I'd say we've retrieved 50 percent of them.

If I could change one industry regulation, it would be:

The biggest problem we have right now is around the state government allowing new on-lot septic system technologies to be easily implemented. These are technologies that have been approved by the National Sanitation Foundation or that are used in other states. Right now it's a very difficult process, and it really needs to be streamlined. There are a lot of great technologies out there that Pennsylvania isn't allowed to use because of the regulatory process, and that's a shame.

Best piece of small-business advice I've heard:

I was introduced to the Franklin Planner a number of years ago. It's a fantastic tool to run your day, organize, balance and prioritize your life and your daily tasks according to what you hold dearest and what your values are. It's indispensable.

If I wasn't working in the wastewater industry, I would:

Be a skipper on an offshore fishing boat.

Crystal ball time - This is my outlook for the wastewater industry:

Big companies are buying up the mom and pops and private businesses so I think you're going to see a lot of consolidation in the industry. And you're going to see a lot of the processing facilities that are owned by family members get bought up by the larger companies. □

Progress Is Slow for New Michigan Septic Code Bills

By David Steinkraus

Last year, two bills were introduced into the Michigan Legislature with the intent of establishing a statewide code for onsite wastewater systems. According to Dendra Best, executive director of WasteWater Education, a nonprofit group based in Traverse City, Michigan, a House Fiscal Agency analysis says the bills would:

1. Require the state Department of Environmental Quality to develop a statewide code setting standards for siting and design of onsite systems, for effluent, for inspection and maintenance of onsite systems, and for the qualifications and continuing education of people managing onsite systems, among other things.
2. Allow local health departments to administer the code.
3. Forbid local governments from adopting point-of-sale ordinances that require an inspection of an onsite system when a property is sold.
4. Require the owner of a septic tank to have it assessed at least every 10 years by a local health department or a registered inspector or service provider.
5. Require alternative systems to be inspected by the state, local health department, or registered inspector at least once every five years.
6. Require all installations after Jan. 1, 2020, to be done with a permit from the state or local health department and using only products that have been registered with the DEQ for use in Michigan.
7. Establish a technical advisory committee of 16 people, including three from the onsite industry, to advise the DEQ on its rules.

WasteWater Education, which works to raise awareness of the link between water quality and wastewater management systems, hosted some online forums to discuss the proposed code.

“I guess the biggest complaint that came out was that the code imposed regulation without any discussion of how to implement the rules,” Best says. There was an absence of transparency when the bill was being drafted, and that left out the local health officials charged with implementing the rules, she says.

The Ottawa County Health Department wrote a four-page position paper objecting to the proposed code. Among other points, the department says there is a lack of evidence showing need for the legislation, yet it would also limit the development potential of large portions of the county. (Ottawa County lies immediately west of Grand Rapids and includes a section of the Lake Michigan shore.)

The requirement for regular inspections would create tensions with citizens, and the proposed rules would add a significant burden to the work of local health departments as they track inspections and ensure compliance with the rules, the Ottawa County department writes. The department’s position paper also faults legislators for creating the bill quickly and without

broad input from the public.

The best solution would be to start over, Best says, and spend a couple of years refining the details as Ohio did. Although standardization is a good idea, she says, a one-size-fits-all code would not work well in Michigan because it has several geologically distinct areas that need to be treated individually. For example, there is flat and fertile farmland around Saginaw Bay next to Michigan’s thumb, and there is the hilly Upper Peninsula where bedrock may be covered by a thin layer of soil.

The condition of the state’s septic systems has been the focus of more than one study in recent years. In mid-September, the Saginaw Bay Watershed Initiative Network released an analysis saying failing onsite systems in five counties around the bay may be a significant cause of water-quality problems in the bay. The nonprofit group advocates for improved water quality in the bay and by extension in the rivers and streams that feed it. The analysis was done by a consulting firm and guided by representatives from the watershed network and eight other conservation and government organizations.

Between 6,000 and 15,000 onsite systems are likely failing, says a press release from the watershed network. That implies a release of as much as 1.26 billion gallons of untreated wastewater every year. But the release also doesn’t blame onsite technology so much as fault system owners.

“When properly designed, sited, installed and maintained, septic systems provide cost-effective and environmentally safe disposal of wastewater. Similar to other household infrastructure, like a furnace or roof, septic systems have an expected service life and require periodic maintenance,” the release says.

Florida

The state is providing funds to upgrade onsite systems located near Florida’s springs. Nitrogen pollution is seeping through the ground and emerging in springs where it fuels algae blooms.

As many as 200,000 homeowners may be eligible for the payments of up to \$10,000. Money is paid directly to installers.

Drew Bartlett, deputy secretary at the state Department of Environmental Protection, says it is unclear how much nitrogen-reducing systems will cost, according to the *Orlando Sentinel*. But the cost may drop as systems become more available, he says.

Also in Florida, Brevard County commissioners voted to overhaul the county’s onsite wastewater rules to reduce pollution of the Indian River Lagoon. The new rules ban installation of conventional septic systems on the county’s barrier islands and on mainland areas within 200 feet of the lagoon.

The lagoon stretches for about 50 miles along Florida’s east coast, and

Brevard County contains its upstream end just east of Orlando. Only new system installations are affected. People with existing septic systems would not be required to upgrade to nitrogen-reducing units.

Commissioners say they would revisit the ordinance no later than August 2020 when additional research on the effects of septic tanks should be complete.

A special 0.5 percent sales tax implemented for lagoon restoration will be used to remove or retrofit about 3,700 septic systems. The estimated cost is \$68 million. The county's natural resources director says there are about 15,000 septic systems within 165 feet of the lagoon.

California

A man accused of illegally dumping septage was sentenced to a year in county jail and may pay up to \$400,000 in fines.

Carlos Velarde Chavez, 64, owner of Carlos' Petaluma Septic Services, pleaded no contest in August to one felony count of theft of utility services and one misdemeanor count of advertising construction work without a proper license, according to *The Press Democrat* in Santa Rosa. Chavez was originally charged in the spring with two felonies and 22 misdemeanors.

Investigators found Chavez while checking complaints of septic tank grit blocking city sewer pipes. Police say he was emptying a 2,800-gallon truck about six days each week into a pipe installed in the backyard of his home and connected to municipal sewer pipes.

Chavez must pay a \$30,700 penalty. A hearing will determine how much more he will pay in damages to the municipalities whose pipes he used. Santa Rosa claims he cost the city \$353,977, while Rohnert Park says it is owed \$15,576.

"It's a fairly significant case in that it's large fines, and we did proceed with a felony for the reason that it caused significant harm to the sewer," says Scott Jamar, chief deputy district attorney. "Cities have to pay for that real cost, and it's thievery, and it has environmental (consequences) if it's not disposed of appropriately given that volume."

Massachusetts

The Falmouth Water Quality Management Committee hopes to submit a wastewater management implementation plan for Oyster Pond to the state well ahead of its December 2019 deadline.

The estuary on the southern side of Cape Cod is troubled by nitrogen pollution, and the plan would require the installation of advanced technology onsite systems at homes in the pond's watershed. At a meeting, the committee discussed connecting homes to a sewer system, but one committee member says onsite technology could be used before the town's next opportunity to expand municipal sewer.

Another member of the committee says older onsite systems permitted by the state meet a nitrogen standard of 19 mg/L. What is needed for the pond is a concentration of no more than 10 mg/L or removal of 75 percent of nitrogen, the *Falmouth Enterprise* reports.

Pennsylvania

Shenango Township in western Pennsylvania recently approved an ordinance requiring specific procedures for abandoned septic tanks.

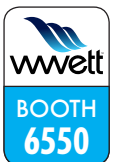
Unconnected tanks must either be removed from the ground or filled with a material such as sand that can be compacted to prevent collapse, reports the *New Castle News*. The town is 45 miles northwest of Pittsburgh. □

Choose Timeless, Not Trendy.



We don't follow fads,
we create lasting solutions.

eljen
CORPORATION



Drainfield Media and Design

By Craig Mandli

DRAINFIELD COMPONENTS



Advanced Drainage Systems Septic Stack

The Septic Stack system from Advanced Drainage Systems is available in configurations of 9, 11 and 13 pipes. The units are designed to allow for exceptional soil contact without use of gravel, functioning as a trickle filter to disperse effluent into the voids in and around specially banded ADS pipe. The pipe is engineered with holes and slots, allowing it to collect and disperse effluent as it passes over corrugations in the pipe. Systems are available for use in both residential and commercial applications in trench, bed and mound configurations, as well as pressure dosing. 800-821-6710; www.ads-pipe.com.

Clarus Environmental WW4

The WW4 effluent filter from Clarus Environmental is mounted in the outflow of the septic tank to provide protection from solids moving out of the tank into the dispersal area. A secondary screen provides continued protection during servicing. When the primary cartridge is removed to be cleaned, the secondary screen blocks solids from sloughing off and traveling to the dispersal area. After the primary cartridge is cleaned, the secondary screen can be removed and cleaned. It can handle up to 4,000 gpd and can be assembled on site in a multi-filter configuration for larger flows. 800-928-7867; www.clarusenvironmental.com.



Eljen GSF

The GSF, or Geotextile Sand Filter, advanced wastewater treatment and dispersal system from Eljen is designed to provide treatment and dispersal in the same footprint while keeping installations easy and maintenance minimal. Utilizing a two-stage pretreatment process, the geotextile modules apply filtered septic tank effluent to the soil, increasing the soil's ability to accept the effluent and increase the long-term acceptance rate. Its design provides increased surface area for biological treatment that greatly exceeds the module's absorption area.



Open-air channels within the module support aerobic bacterial growth on the module's geotextile fabric interface, surpassing the surface area required for traditional absorption systems. The result is simple installations in a smaller soil absorption area, according to the maker. The system is tested and certified by NSF to NSF/ANSI Standard 40. 800-444-1359; www.eljen.com.



Geomatrix Systems GST Leaching System

The GST Leaching System from Geomatrix Systems is an adaptation of the stone leaching trench. This traditional leaching system has been improved with the use of a removable form to accurately shape and construct leaching fingers along the sides of a central distribution channel. The system is constructed with 3/4-inch washed stone and is surrounded with ASTM C-33 sand. The fingers serve to increase the sidewall surface area by more than six times that of a traditional stone trench. Additionally, the narrow profile of the leaching fingers and central distribution channel, combined with the uniform profile of the sand treatment media, serve to enhance oxygen transfer efficiencies, which can result in better treatment of the wastewater pollutants and a leachfield with a longer life span, according to the maker. It has direct stone-to-soil contact for enhanced long-term performance and can be configured with standard gravity, pressure and/or time-dosed distribution. 860-510-0730; www.geomatrixsystems.com.

Sim/Tech Filter pleated filter units

Pleated filter units from Sim/Tech Filter provide gravity effluent filtration in septic tanks and turbine pump filtration in pump tanks. The filtration size is 3/32 inch in two dimensions. Flow channels in the pleated material increase longevity. All filter types start at over 2,000 square inches of filtration area. The 45 percent open area (over 900 square inches) is equivalent to 800 linear feet of 3/32-inch slots. Various configurations and larger units are available. 888-999-3290; www.simtechfilter.com.





TUF-TITE tank risers

Tank risers from TUF-TITE have internal supports or ledges to reinforce internal plastic safety lids. The ledges will strengthen the company's plastic internal safety lids or a variety of internal safety devices made by others, such as concrete, fiberglass or rope netting. The riser lids come with all necessary mounting hardware, including safety screws. 800-382-7009; www.tuf-tite.com.

ware, including safety screws. 800-382-7009; www.tuf-tite.com.

VENT PIPE FILTERS

Pagoda Vent septic vents

Septic vents from Pagoda Vent are designed to help enhance system function with landscape appeal and homeowner approval. The units are designed to provide the necessary ventilation to the drainfield and have a durable, lightweight exterior that won't fade or rust, according to the manufacturer. The units encourage a healthy subsurface environment, mitigate harmful gases, and preserve concrete component integrity by diminishing the opportunity for microbial-induced corrosion. Optional odor filter cartridges are available and fit concealed in the vent unit. 888-864-1468; www.pagodavent.com.



Polylok Poly-Air

The Poly-Air activated-carbon roof vent from Polylok can help remove offensive odors, such as hydrogen sulfide, as they come out of the roof vent. The 6-inch unit offers 5 pounds of activated carbon, while smaller units offers 1 pound. 877-765-9565; www.polylok.com.

Simple Solutions Distributing Super Wolverine

The solar-powered Super Wolverine vent filter from Simple Solutions Distributing is designed to eliminate odorous airflows up to 10 cfm, and the solar fan vents the tank, reducing accumulation of sewer gas. It holds between 8 and 10 pounds of activated carbon and is available with inlet sizes between 3 and 6 inches. It can be used for larger aerobic systems found at restaurants or on small commercial buildings. It has an optional saturation indicator for monitoring the life of the carbon bed and uses a 2-inch drain plug for media replacement. 866-667-8465; www.industrialodorcontrol.com.



The Dirty Bird septic vent

The Dirty Bird provides an alternative to the standard septic vent required by many municipalities for new residential and commercial construction. It is an easy-to-install septic vent shaped like a birdbath. Meeting U.S. Environmental Protection Agency septic venting regulations, it controls odors through a replaceable charcoal filter and vents gases through holes at the bottom of the pedestal so nothing enters the septic system. Fade-resistant (UV stabilized), lightweight and recyclable, it is available in granite, sandstone and terra cotta colors. It is constructed of 100 percent low-density polyethylene and stainless hardware. It is 32 inches high with a basin width of 23 inches and footprint of 12 1/4 inches. 866-968-9668; www.thedirtybird.com. □



HAVE A STORY IDEA?

Email us at editor@onsiteinstaller.com

Roth
MULTITANK

Septic Tanks • Water Cisterns
Pump Tanks • Holding Tanks
Rain Water Harvesting

Multi Usage

- Inner layer of FDA approved virgin HDPE, two inside layers of PE for improved stability, plus one outer layer of black and UV-stabilized PE
- Lifetime* corrosion protection and 5 years of labor insurance
- Strongest & heaviest poly tank on the market
- No water for backfilling required
- Low profile
- 100% watertight

Multi Layer

Multi Coverage

Our multi-layered tank construction, consisting of virgin material surrounded by 3 layers of protection.



BEST TANK. BEST WARRANTY. BEST SYSTEM.

Roth Global Plastics

www.roth-america.com 866-943-7256

*see warranty for details

Drainfield Media and Design

By Craig Mandli

Sand filter system with chambers solves site and soil challenges



Problem: After purchasing a five-bedroom home in Centennial, Colorado, the homeowners were notified by the local health department that the septic system was red-tagged due to effluent surfacing in several areas of the drainfield. Design options for a replacement drainfield were limited due to the low permeability clay soils and the constricted site. Scott Kellogg of Douglas County Septic reached out to system designer, Kate Carney, P.E., of CHURCH Onsite Wastewater Consultants.

Solution: Carney designed a new 675-gpd mounded pressurized sand filter system that could be installed in the footprint of the existing 4,600-square-foot disposal system. Wastewater flows 54 feet from the house to a 2,000-gallon septic tank. The on-demand pump in the third compartment of the tank discharges 84 gallons per dose to the automatic distribution valve. The ADV alternates dosing to six zones in the 3,672-square-foot mounded **Quick4 Plus** low-profile chamber drainfield from **Infiltrator Water Technologies**. Each zone has two 102-foot-long rows of 25 chambers each and 1.25-inch PVC laterals with 1/8-inch orifices drilled on 36-inch centers are suspended in the chambers at the 12 o'clock position. The automatic distribution valve was placed in an insulated riser to prevent freezing. Backfilling and grading and the construction of a swale divert runoff from the drainfield. Underground drainpipes were installed to collect and divert roof runoff.


Result: The installation was successful. Douglas County Septic will monitor the system components and pump the tank as needed. 800-221-4436; www.infiltratorwater.com.

Passive treatment system provides winter treatment at national park



Problem: One of Grand Canyon National Park's public facilities, a 150,000-gpd wastewater treatment plant, is closed during the winter at the North Rim. National Park Service employees currently use an old converted treatment system as a septic tank and leachfield during the winter operations. The park service wanted to replace and upgrade the disposal system due to age and the increased potential for a failure that would require curtailment of staff operation and maintenance functions during the winter.

Solution: The site investigation was completed and it was determined that upgrading the treatment along with a new disposal system was merited by the site conditions. They decided to install a 2,900-gpd, 1,400-linear-foot **Advanced Enviro-Septic** system from **Presby Environmental Inc. (PEI)**. It is a combined treatment and dispersal system that requires no electricity or special maintenance. The system would serve eight one-bedroom apartments and 13 employees.

Result: The installation was successful, providing an updated passive treatment and dispersal system that doesn't require special maintenance or upkeep. 800-473-5298; www.presbyeco.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
www.FergusPowerProducts.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 e-mail: sales@alita.com

BUILD STRONG - BUILD SAFE

WITH PRECAST TANKS TO 40,000 GALLONS



- ◆ Septic, Grease Interceptors, Aeration, Holding Tanks
- ◆ Available in Sizes 750 to 40,000 Gallon
- ◆ Extra Heavy Duty Tanks — HS20 Loading
- ◆ Fast, Efficient Settings

Visit us on the Web: www.wieserconcrete.com

- ◆ Vacuum-Tested, Water Tight Structures
- ◆ Tanks for Bio-Microbics and Nibblers, Sand Filters
- ◆ Custom Sizes Available to Fit Your Needs
- ◆ National Delivery and Setting





Innovation, Quality and Service since 1965

1-800-325-8456

SOLD

Sell your equipment in *Onsite Installer* classifieds

Reach over 21,000 potential buyers each month when you list your equipment in the classified section. Plus, your listing is placed automatically online at the *Onsite Installer* website. That's two ways to move your equipment out of the parking lot!

Why wait?

Go to OnsiteInstallermonthly.com/classifieds/place_ad



Scan the code with your smartphone.

Featured In An Article?

We provide reprint options



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

POSTERS
Starting At
\$35



LASER REPRINTS
Starting At
\$10



ELECTRONIC REPRINTS
Starting At
\$25

A Way to Do It Better
By Scottie Dayton | Cover Story | March 2013
0 Comments | View in E-Zine | **Order Reprints** | Share

Order through our website
www.onsiteinstaller.com

PRODUCT NEWS

Water Cannon Inc. electric clutch series of pressure washers

The heavy-duty, 12-volt electric clutch series of pressure washers from Water Cannon Inc. - MWBE are designed to mount on front of a diesel engine for high-pressure washing on location. It is available in three pressures from 2,000 to 4,000 psi and flow rates from 4 to 8 gpm. Other features include a continuous-duty hydraulic coupling drive system, an in-line serviceable stainless steel mesh water filter, stainless steel unitized valves, forged brass manifold and a heavy-duty triplex plunger pump. The thermo-pump protector engages at 140 degrees F, and the adjustable pressure regulator is from 150 psi to the max pressure. 800-333-9274; www.watercannon.com.



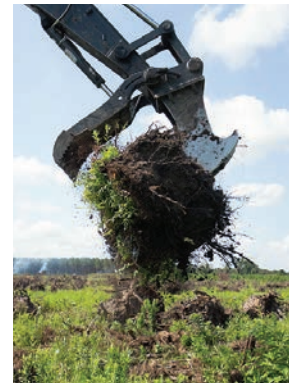
Case Construction Equipment TV450 compact track loader

Case Construction Equipment's TV450 compact track loader provides a 10,610-pound vertical lift with a rated operating capacity of 4,500 pounds at 50 percent tipping load. It features 9,188 pounds of breakout force and optional high-flow and enhanced high-flow hydraulics for high-power attachments such as mulching heads, stump grinders and cold planers. It is available with either standard mechanical H pattern controls or optional electrohydraulic controls with H and ISO pattern interchangeability, as well as optional mechanical hand and foot controls. Case electrohydraulic controls provide adjustable speed and control sensitivity settings that can adjust to meet the needs of each application and attachment. Operators are able to switch between H and ISO patterns via a simple rocker switch. 866-542-2736; www.casece.com.



Solesbee's Stump Puller

Solesbee's (KINSHOFER USA) excavator Stump Puller is made from high-strength alloy steel and replaceable wear tips designed for extended service life. It fits 15- to 40-ton excavators and has two shanks that cut through roots without displacing a lot of dirt. The shank's curved design significantly increases breakout force for slicing through tough surfaces when extracting forestry material. The puller also features claws on the back of each shank to push stumps away from the excavator. 800-419-8090; www.solesbees.com.



LIKE WHAT YOU ARE READING? Onsite Installer is Free!

Keep it coming at www.onsiteinstaller.com





Durable Gear for Extreme Conditions

HIGH PERFORMANCE COOLERS

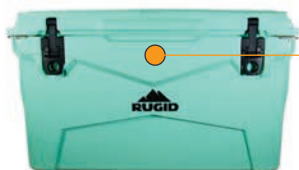


Shown in Snow

20 Quart Cooler

Size: 21.25 x 13.75 x 14.25
Capacity: 30 cans no ice

\$149.99



Shown in Surf

35 Quart Cooler

Size: 22.5 x 16.25 x 16.25
Capacity: 48 cans no ice

\$179.99

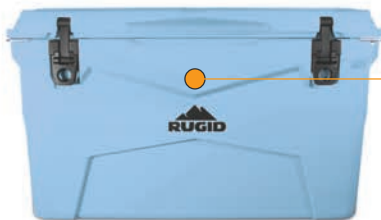


Shown in Sand

45 Quart Cooler

Size: 27 x 16 x 16.25
Capacity: 64 cans no ice

\$199.99



Shown in Sky

60 Quart Cooler

Size: 28.5 x 18.375 x 18
Capacity: 95 cans no ice

\$239.99



Shown in Slate

75 Quart Cooler

Size: 34.25 x 18.375 x 18
Capacity: 117 cans no ice

\$299.99

\$9* FLAT RATE SHIPPING
ON ALL ORDERS **FedEx**

* Continental U.S. Only

Ground

FLOATING & WATERPROOF GUN & BOW CASES



Small Handgun/Electronics Case

Specs: 9"L x 8"W x 2"H, PVC Exterior, Floats

Standard Waterproof: **\$39.99** Submersible Waterproof: **\$69.99**



Large Handgun/Laptop Case

Specs: 16"L x 11.75"W x 2"H, PVC Exterior, Floats

Standard Waterproof: **\$49.99** Submersible Waterproof: **\$79.99**



Tactical/AR Case

Specs: 44"L x 14.25"W x 2"H,
PVC Exterior, Floats

Standard Waterproof: **\$99.99**

Submersible Waterproof: **\$149.99**



Rifle Case

Specs: 48"L x 10.385"W x 2"H,
PVC Exterior, Floats

Standard Waterproof: **\$99.99** Submersible Waterproof: **\$149.99**



Shotgun Case

Specs: 54"L x 10"W x 2"H,
PVC Exterior, Floats

Standard Waterproof: **\$99.99** Submersible Waterproof: **\$149.99**



Compound Bow Case

Specs: 39"L x 18.5"W x 6"H,
PVC Exterior, Floats

Standard Waterproof: **\$189.99**

Submersible Waterproof: **\$239.99**

COMPACT HD BINOCULARS

8 x 42 Binoculars

Specs: 5.3"H x 4.9"W,
Waterproof, Fog Proof,
Roof Prism BAK4,
Coated Lenses

\$189.99

10 x 42 Binoculars

Specs: 5.3"H x 4.9"W,
Waterproof, Fog Proof,
Roof Prism BAK4,
Coated Lenses

\$199.99



Order online at:

RUGIDGEAR.COM

Or call us to order toll free: **833-777-8443**

Extra!
Extra!

Want More Stories?

Get more news,
information,
and features
with our
exclusive
online content.

Check out

Online Exclusives

at

www.onsiteinstaller.com/online_exclusives

ONSITE
installer

INDUSTRY NEWS



Felling Trailers co-owners, Brenda Jennissen (CEO) and Bonnie Radjenovich (vice president of human resources), with bid winners Jon and Laurie Stein of Centre Dairy Equipment & Supply.

Felling Trailers holds sixth annual Trailer for a Cause Auction

Felling Trailers held its sixth annual online auction of an FT-3 drop-deck utility trailer to benefit a nonprofit organization. For 2018, Minnesota Ovarian Cancer Alliance was chosen. The winning bid of \$3,400 was placed by Jon Stein, owner of Centre Dairy Equipment and Supply in Sauk Centre, Minnesota. Stein's wife, Laurie, is an ovarian cancer survivor.



Wieser Concrete plant tour at NOWRA conference

The annual National Onsite Wastewater Recycling Association (NOWRA) held an extensive, guided tour of the Wieser Concrete plant headquartered in Maiden Rock, Wisconsin. The tour group, which included engineers, designers, installers, pumpers, manufacturers and regulators, walked through the 101,000-square-foot facility and heard a presentation on the company's history. In addition to the plant tour, attendees were driven to the new City of Afton Large Subsurface Sewage Treatment System and the St. Croix Bluffs Regional Park campground septic system site, both of which have used various Wieser Concrete tanks.

Komatsu announces plans for new customer support and service center

Komatsu Equipment announced plans to build a 189,000-square-foot service center on 30 acres in Elko, Nevada. The new building is planned to include a six-bay, full-service construction equipment and mechanical rebuild shop; a heavy welding and fabricating shop large enough for the rebuild and manufacturing of large shovel and truck structures and the manufacturing of truck bodies; a heavy machine shop with large, horizontal milling and boring machines, plus vertical lathe capability; and a construction equipment and rental machine yard. Plans are to complete construction by early 2020, combining the staff and functions of three existing buildings.

SJE-Rhombus launches new websites

SJE-Rhombus launched four new websites as part of the company's rebranding effort. Existing sites for www.csicontrols.com, www.primexcontrols.com and www.sjrhombus.com received a redesign, while an additional corporate site was created for SJE-Rhombus at www.sjeinc.com. This new site contains all corporate information. □



LIVE DEMONSTRATIONS AT THE INDUSTRY MARKETPLACE

Want to see how a piece of equipment works? Want to find out how it can help you do your job more efficiently? Don't miss the Product Demonstrations at WWETT Show 2019.

These live action, how-to sessions led by top manufacturers will demonstrate the products for you, and show you tips and best practices that will help increase your productivity and boost your business.

Visit the Live Demonstrations that will take place in the Marketplace Expo Hall. Here are a few of the participating companies.



Booth 5206



Booth 3425



Booth 5206



Booth 4316



Booth 3415



Booth 5206



Booth 1051

WWETT Live! at Lucas Oil Stadium - a festival of live demos and FUN! Here are some participating manufacturers.

WHY SHOULD YOU ATTEND?

- ✓ **Explore the Marketplace** for tools and resources you need for your business
- ✓ **CEUs** from some of the best and brightest speakers in the industry
- ✓ **Events** to network with your peers - or just kick back with friends.



CONFERENCE: FEBRUARY 20-22
MARKETPLACE: FEBRUARY 21-23
INDIANA CONVENTION CENTER

Serving the Industry

Visit your state and provincial trade associations

ALABAMA

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

ARIZONA

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

ARKANSAS

Arkansas Onsite Wastewater Association;
www.arkowa.com

CALIFORNIA

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

COLORADO

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

CONNECTICUT

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

DELAWARE

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

FLORIDA

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

GEORGIA

Georgia Onsite Wastewater Association;
www.onsitewastewater.org; 706-407-2552

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

IDAHO

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

ILLINOIS

Onsite Wastewater Professionals of Illinois;
www.owpi.org

INDIANA

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

IOWA

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

KANSAS

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

KENTUCKY

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

MAINE

Maine Association of Site Evaluators;
www.maine.com

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

MARYLAND

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

MASSACHUSETTS

Yankee Onsite Wastewater Association;
www.maowp.org; 781-939-5710

MICHIGAN

Michigan Onsite Wastewater Recycling Association;
www.mowra.org

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

MINNESOTA

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

MISSISSIPPI

Mississippi Pumpers Association;
www.mspumpersassociation.com; 601-249-2066

MISSOURI

Missouri Smallflows Organization;
www.mosmallflows.org; 417-631-4027

NEBRASKA

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

NEW HAMPSHIRE

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

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

NEW MEXICO

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

NEW YORK

Long Island Liquid Waste Association, Inc.;
www.lilwa.org; 631-585-0448

NORTH CAROLINA

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

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

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

OHIO

Ohio Onsite Wastewater Association;
www.ohioonsite.org; 888-294-0084

OREGON

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

PENNSYLVANIA

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

Pennsylvania Onsite Wastewater Recycling Association; www.powra.org

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

TENNESSEE

Tennessee Onsite Wastewater Association; www.tnonsite.org

TEXAS

Texas On-Site Wastewater Association; www.txowa.org; 409-718-0645

Education 4 Onsite Wastewater Management; www.e4owm.com; 713-774-6694

VIRGINIA

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

WASHINGTON

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

WISCONSIN

Wisconsin Onsite Water Recycling Association; www.wowra.com; 888-782-6815

Wisconsin Liquid Waste Carriers Association; www.wlwca.com; 888-782-6815

NATIONAL

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

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

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

CANADA ALBERTA

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

BRITISH COLUMBIA

British Columbia Onsite Wastewater Association; www.bcossa.org; 778-432-2120

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

MANITOBA

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

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

NEW BRUNSWICK

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

NOVA SCOTIA

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

ONTARIO

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

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

SASKATCHEWAN

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

CANADIAN REGIONAL

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



= Thank You!

Hand-selected Wisconsin sausage and jerky delivered in a 20-qt. **RUGID** cooler.

\$199.99 Delivered

Meaty-Delivery™

meaty-delivery.com
833-777-8443

Jet[®]
Wastewater Treatment Solutions
Founded on Innovation. Anchored by Service.[®]
1.800.321.6960
www.jetincorp.com
email@jetincorp.com

wwett
BOOTH 2378

Beyond buckets & blades.

digDIFFERENT

FIND OUT HOW.
FREE subscription at digdifferent.com

The Shaddix Company

Custom Made To Your Specs Truck Beds & Forms

1500 & 1000 Gal.
2 Compt. Septic Tank Forms

Septic Tank Delivery Beds

Call Dewayne for a quote!

256-737-0051
www.shaddix.us

PATENT #US 8,273,162

IndustrialOdorControl.com
A Broad and Economical Range of Odor Control Solutions

- Manhole Odor Inserts
- Pollution Control Barrels
- Activated Carbon
- Lift Station Odor Control
- Septic Vent Filters
- Custom Solutions

Simple Solutions (866-667-8465)
DISTRIBUTING LLC 973-846-7817 in NJ
Makers of the Wolverine Brand of Odor Control Solutions

GET EMAIL NEWS ALERTS FOR ONSITE installer

Go to onsiteinstaller.com/alerts and get started today!

POLYLOK™ Inc.

Innovations in Precast, Drainage & Wastewater Products



PROVEN TECHNOLOGY

Polylok, Inc. is recognized as the industry leader in onsite wastewater technology. With our proven track record, you can't go wrong. We offer three unique filter lines: **Polylok**, **Zabel** and **Best**. We also carry a complete line of septic tank risers and safety devices.



1-877-765-9565 / www.polylok.com

Photo by:
Jane Zima

