

A man in a blue short-sleeved button-down shirt, blue jeans, a brown leather belt, and a blue baseball cap with a logo stands with his arms crossed in front of a large white wastewater pump truck. The truck has blue and white stripes on its side and various mechanical components like pipes and valves are visible. The man is smiling at the camera.

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March 2019 [pumper.com](http://pumper.com)

## **BRINGING HOME THE BACON**

Iowa wastewater entrepreneur and farmer  
Paul Cooley never knows where the job  
board will send him

PAGE 20

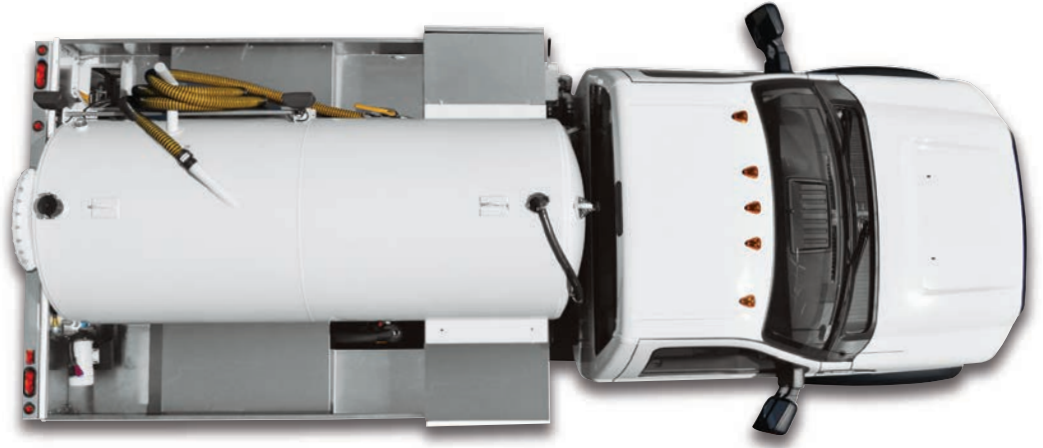
## **THE HOMETOWN HELPERS**

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PAGE 36



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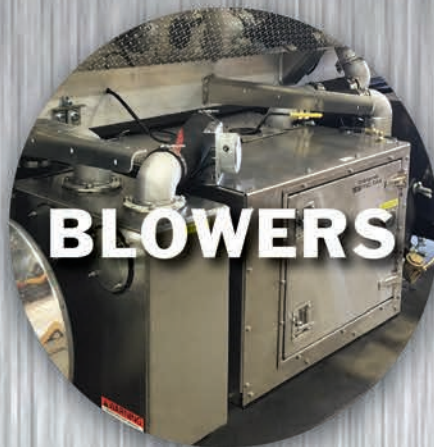


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Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm	RTX 60
15.8	60.0	4350	300	1450	47.2	0.984	25	1.012	28	

RTX 70	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
	18.5	70.0	2000	138	1450	25.4	1.181	30	0.906	23

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22.5	85.0	2200	151.7	1450	34.0	1.181	30	1.102	28	

RTX 100	Max GPM.	Max. LMP	Max. PSI	Max. Bar	Max. RPM	Req. HP	Bore Dia. in.	Bore Dia. mm	Stroke in.	Stroke mm
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## 20 Bringing Home the Bacon

- Giles Lambertson

From pumping to drain cleaning; portable sanitation to installing; and system inspections to farming, Iowa's Paul Cooley never knows where the daily job board is going to send him.

**ON THE COVER:** Paul Cooley leads a four-generation Iowa pumping business, Cooley Pumping / Cooley Sanitation, that performs a wide variety of wastewater-related work. Cooley is shown with a Peterbilt service truck with a National Vacuum Equipment pump and built out by Imperial Industries. (Photo by K.C. McGinnis)

## 10 Between the Lines: Vault Toilet Vent Pipes Pose a Wildlife Entrapment Danger

Wyoming nonprofit Teton Raptor Center sells the Poo-Poo screen for use on thousands of holding tank vent stacks, protecting cavity-nesting birds from drowning in waste.

- Jim Kneiszel

## 16 @pumper.com

Check out the latest online-only content at the Pumper website.

## 28 Building the Business: Are the Big Guys Coming for Your Customers?

Build a customer retention program to fight back against large would-be operators who want to set up shop in your territory and take over.

- Rodney Koop

## 32 Rules & Regulations

Federal farm bill includes funding for rural onsite system upgrades.

- David Steinkraus

## 36 The Hometown Helpers

Oklahoma's Wilco Septic doesn't like to turn down work and is always willing to take on new wastewater services to keep customers happy

- Ken Wysocky

## 46 ATU Directory

## 54 Associations List

## 58 Money Manager: Incentivize Septic Driver Bob to Kick the Smoking Habit or Take Off a Few Pounds

Even the smallest pumping companies can start a wellness program to cut insurance and absenteeism costs as well as help employees on the road to health and happiness.

- Erik Gunn

## 62 Pumper Interview: Wyoming Pumping Program Helps Keep Waterways Pristine

Local government and a nonprofit organization subsidize septic maintenance to keep the West wild and the rivers clean.

- David Steinkraus

## 66 States Snapshot:

### 'Are There Leeches in the Leachfield?'

New Hampshire wastewater pros work with state officials to improve industry regulations and look for opportunities to educate an uninformed general public.

## 70 Septic System Answer Man:

### Food and Drink Establishments Test the Skills of Wastewater Professionals

Your commercial customers may wonder why their septic system requirements are so much more onerous than home treatment. That's when you explain the facts about high-strength waste.

- Jim Anderson

## 74 Classy Truck

G&L Septic, St. Charles, Illinois

## 76 Product Focus: Advanced Treatment Units

- Craig Mandli

## 80 Case Studies: Advanced Treatment Units

- Craig Mandli

## 82 Product News

**Product Spotlight:** Versatile submersible sewage pumps offer big benefits.

- Craig Mandli

## 84 Industry News

## 86 Marketplace

## 88 Classifieds

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<b>A</b>	
A Corp/Rooter-Man.....	68
A.R. North America, Inc. ....	4
<b>ABBOTT RUBBER</b> COMPANY, INC.	
Abbott Rubber Co., Inc. ....	18
<b>AMT PUMP COMPANY</b>	
AMT Pump Company .....	34
<b>AMTHOR</b>	
Amthor International .....	26
Anua .....	44
AP Equipment Financing .....	60
<b>AQUA-Zyme</b>	
AQUA-Zyme Disposal Systems.....	60
<b>arcan</b>	
Arcan Enterprises, Inc. ....	64
<b>B</b>	
<b>BEST ENTERPRISES</b>	
Best Enterprises, Inc. ....	35
BioMicrobics, Inc. & SeptiTech .....	55
<b>Seal-R</b>	
Brenlin Company, Inc. ....	4
<b>C</b>	
<b>CAM</b>	
Cam Spray.....	67
<b>Cape Cod Biochemical Co.</b> .....	68
<b>Comforts of Home</b>	
Comforts of Home Services.....	26

<b>CRUST BUSTERS</b>	
Crust Busters .....	34
<b>D</b>	
<b>DAVIDSON TANK</b>	
Davidson Tank .....	74
Denver Truck Sales .....	68
<b>E</b>	
E-Pak Manufacturing, LLC .....	56
<b>Ecological Laboratories</b> .....	56
Eljen Corporation.....	34
<b>Wallenstein</b>	
Elmira Machine Industries/ Wallenstein Vacuum .....	17
<b>EAM</b>	
Engine & Accessory, Inc. ....	51
<b>ERICKSON</b>	
Erickson Tank & Pump LLC.....	72
<b>F</b>	
<b>Solutions</b>	
F.S. Solutions.....	69
<b>Five Peaks</b> .....	75
<b>FLOWMARK</b> VACUUM TRUCKS	
FlowMark Vacuum Trucks .....	77
FMI Truck Sales & Service .....	56
<b>FRUITLAND</b>	
Fruitland Manufacturing.....	7

<b>GapVax</b>	
GapVax, Inc. ....	15
<b>H</b>	
Hoot Systems, LLC.....	53
<b>House of Imports</b> .....	11
<b>I</b>	
<b>IMPERIAL INDUSTRIES, INC.</b>	
Imperial Industries, Inc. ....	43
<b>In the Round Dewatering</b>	
In the Round Dewatering.....	26
<b>J</b>	
Jet, Inc. ....	18
<b>K</b>	
<b>KeeVac</b>	
KeeVac Industries, Inc. ....	81
Keith Huber Corporation.....	30
Key Commercial Corp. ....	72
<b>L</b>	
<b>LANE'S VACUUM TANK, INC.</b>	
Lane's Vacuum Tank, Inc. ....	29
<b>Lenzyme</b>	
Lenzyme/Trap-Clear.....	4
<b>M</b>	
<b>Marsh Industrial</b> .....	14
<b>MASPORT</b>	
Masport, Inc. ....	25
<b>EXPLORER</b>	
McKee Tech. - Explorer Trailers ...	17
Mid-State Truck Service, Inc.....	12
<b>MRP</b>	
Milwaukee Rubber Products.....	79
<b>Moro USA, Inc.</b> .....	61
<b>N</b>	
<b>NAWT</b>	
National Association of Wastewater Technicians .....	84
<b>National Truck Center</b>	
National Truck Center .....	9
<b>NVE</b>	
National Vacuum Equipment .....	3
<b>P</b>	
P-POD, Inc. ....	64
<b>pikrite</b>	
Pik Rite, Inc. ....	63
Plastiflex .....	31
<b>POLYJOHN</b>	
PolyJohn Enterprises.....	95
<b>P/L POWER BOOSTER</b> BY PRESSURE LIFT	
Pressure Lift Corporation.....	14
<b>PRESVAC</b>	
Presvac Systems.....	96
<b>R</b>	
<b>REELCRAFT</b>	
Reelcraft Industries.....	42

<b>Summit</b>	
Ritam Technologies LLC.....	52
<b>Robinson Vacuum Tanks</b> .....	59
ROEDA, Inc. ....	64
<b>Roth</b>	
Roth North America .....	63
<b>RUGID</b>	
RUGID .....	85
<b>Rush Refuse Systems</b> .....	21
<b>S</b>	
Sansom Industries LLC .....	39
<b>Satellite</b>	
Satellite Industries .....	45
<b>Satellite Suites</b>	
Satellite Suites .....	13
<b>ScreenC Systems</b>	
Screenco Systems, LLC.....	83
<b>SIM/TECH</b>	
Sim/Tech Filter, Inc. ....	52
<b>THE SLIDE IN WAREHOUSE</b>	
Slide-In Warehouse .....	81
<b>Specialty B Sales</b> .....	79
<b>T</b>	
<b>T&amp;T Tools, Inc.</b> .....	30
<b>T.S.F. Company, Inc.</b> .....	19
<b>TANK WORLD CORP</b>	
Tank World Corp. ....	33
<b>TankTec</b>	
TankTec .....	94
<b>Transport Truck Sales, Inc.</b> .....	65
<b>Transway Systems, Inc.</b> .....	5
Truck Country .....	52
<b>TRUCK X PRESS</b>	
TruckXpress .....	2
<b>TSI</b>	
TSI Tank Services, Inc. ....	44
<b>TUF-TITE</b>	
TUF-TITE, Inc. ....	27, 67
<b>U</b>	
<b>U.S. TANKS</b>	
U.S. Tanks Industry .....	60
<b>V</b>	
<b>VAC-CON</b>	
Vac-Con, Inc. ....	57
<b>vacutrux</b>	
Vacutrux Limited.....	17
<b>VSI</b>	
Vacuum Sales, Inc. ....	59

<b>VARCO</b>	
VARCO.....	37
<b>VECTOR</b>	
Vector Technologies, Ltd. ....	33
<b>W</b>	
<b>WALEX</b>	
Walex Products Company. ....	23
<b>Water Cannon</b>	
Water Cannon, Inc. - MWBE .....	73
<b>WE</b>	
Wee Engineer, Inc. ....	73
<b>Westmoor Ltd.</b> .....	41
<b>Z</b>	
<b>ZOOM DRAIN</b>	
Zoom Drain Franchise Co. ....	71
<b>Classifieds.....</b>	88-93
<b>Marketplace.....</b>	86-87

## REGIONAL ADVERTISERS

### Midwest Supplement

(after page 74)

<b>Advance</b>	
Advance Pump & Equipment.....	3
<b>Fyda Freightliner</b>	
Western Star Zanesville .....	3
<b>Marengo Fabricated Steel</b> .....	1
<b>R.A. Ross &amp; Associates NE</b> .....	2
<b>RIDER</b>	
Rider Agri Sales & Service .....	4

### Eastern Supplement

(after page 74)

<b>Advance</b>	
Advance Pump & Equipment.....	3
<b>Andert, Inc.</b> .....	2
<b>Fyda Freightliner</b>	
Western Star Zanesville .....	3
<b>Marengo Fabricated Steel</b> .....	1
<b>R.A. Ross &amp; Associates NE</b> .....	2
<b>VSI</b>	
Vacuum Sales, Inc. ....	4

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Contact Jim with your comments, questions and opinions at [editor@pumper.com](mailto:editor@pumper.com).

# Vault Toilet Vent Pipes Pose a Wildlife Entrapment Danger

Wyoming nonprofit Teton Raptor Center sells the Poo-Poo screen for use on thousands of holding tank vent stacks, protecting cavity-nesting birds from drowning in waste **By Jim Kneiszel, Editor**

**T**he distressing image of a cavity-nesting bird trapped at the bottom of a vault toilet pushed the folks at the Teton Raptor Center in Jackson Hole, Wyoming, to solve a shortcoming of pit toilets found in parks across North America and serviced by pumping companies.

The wildlife rehabilitation center receives several reports every year of wildlife becoming trapped in vault toilets, sometimes with fatal consequences and sometimes when they can make a rescue. Typically trapped are owls, kestrels (a type of falcon) and other birds that mistake the rooftop vent stack for a hollowed-out tree or fence post when looking for nesting sites. The birds enter the pipes and slide down into the tank, with no way to spread their wings and push themselves back up the slippery pipe walls.

Also, some types of waterfowl, reptiles, even raccoon and foxes have been trapped inside a tank full of waste.

The foxes get there when snows are deep enough to cover the toilet structure roofs and then they fall down the hole, according to David Watson, development director for the Teton Raptor Center and its Poo-Poo Project coordinator.

## CREATING A SCREEN

Several years ago, a photo was circulating on the internet of an owl stuck in the bottom of a vault toilet. A few of the center's employees "jokingly said, 'Why don't we do something about this?'" Watson recalls. So the center with 10-12 employees located near the Grand Teton National Park, worked with a local company, Premier Powder Coating & Custom Fabrication, to design a protective screen that goes over the top of the 12-inch vents found on vault toilets.

To date, the nonprofit has sold nearly 14,000 screens through 500 partner organizations in the U.S., Canada and the Virgin Islands, bird-proofing many vault toilets found in national parks, forests and other wild places. All proceeds from the Poo-Poo Project, as it's called, pay for the materials and the raptor center's educational programming.

"It may seem strange (for the raptor center to manufacture and sell vent screens), but we want to do whatever we can to help the birds," Watson says. "It's great for the birds and it raises awareness for the wildlife entrapment

“ I remember getting a call from the Forest Service and they said a bird found its way down there and died inside the vault; I said we should do something about that. Soon we found the raptor center and here we are today. ”

**Adam Bauer**



**Left:** A Poo-Poo screen is installed on a vault toilet. Note how the flanges create air space. (Photo courtesy of Missisquoi National Wildlife Refuge in Vermont)

**Below:** An American kestrel is stuck in a vault toilet in Elko, Nevada, before it is rescued. (Photo courtesy of U.S. Bureau of Land Management)



issue, and we're seen as a pretty innovative raptor center in the U.S."

The 12-inch dished and screened steel cover has four flanges and self-tapping screws that fix it to the vent pipes, which are typically made of black plastic high-density polyethylene pipe. The flanges create a 3/4-inch opening around the top of the pipe to allow airflow even if the vent screens are covered with snow.

## GETTING THE WORD OUT

The raptor center sells the screens directly to parks and wildlife protection groups. It also has a Sponsor-a-Screen Program where anyone can make a donation for a Poo-Poo screen, which is then installed where needed, and the donor receives a letter explaining where it was used to protect wildlife.

(continued)



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A long-eared owl adopts  
a defensive posture  
after being rescued from  
a vault toilet. (Photo  
courtesy of U.S. Bureau  
of Land Management)

The raptor center has also found a big partner in the Missoula Concrete Construction, which has bought hundreds of screens and adds them for free to vaults they provide to customers across the country.

Adam Bauer, of the concrete manufacturing company, says he was occasionally getting reports from customers of birds being found in their vault tanks. It was concerning for Bauer, who wants his company to have a focus on the environment and protecting wildlife.

"This is something we thought about prior to knowing the raptor center existed and were in the process of designing our own screen when we found them," Bauer says. "I decided that even though I could produce my own for less money, I would feel better about contributing toward the raptor center."

Many pumpers are familiar with vault toilets and may have encountered trapped wildlife when pumping their holding tanks. The Missoula Concrete Construction vault toilets consist of a 1,000-gallon tank, which is 4 feet, 9 inches deep, topped by the restroom structure, also made of concrete, and held in place over the vault with a thick rubber seal.

Bauer was happy to partner with the nonprofit center. "I remember getting a call from the Forest Service and they said a bird found its way down there and died inside the vault; I said we should do something about that. Soon we found the raptor center and here we are today," he says.

### SEPTIC TANKS AND RESTROOM VENTS

The dangers of the vault toilet vents raise another issue. Could wildlife entrapment be an issue for smaller vents used in portable restrooms, or potentially even some septic or holding tank vents? Watson says that may be an issue, but the raptor center doesn't have any specific evidence. However, he says smaller PVC pipes used to mark mining claims have been responsible for the deaths of thousands of songbirds in the West. These pipes are driven into the ground as markers, and Watson says they are similar in diameter and structure to portable restroom holding tank vent pipes.

"There have been instances where a pipe has been pulled out of the ground and there's 50 dead birds laying there," Watson says. The center is currently studying whether the vault screens could be made of a UV-protected plastic that would greatly reduce the cost to manufacture them, and Watson says a plastic screen could be scaled down for use in portable restrooms if wildlife entrapment is an issue.

For the time being, Watson says his group has its hands full trying to add screens to as many vault toilets as possible and wants to expand its reach to save more birds.

### WHAT HAVE YOU SEEN?

So have you or your crew found wildlife trapped in a vault toilet, a septic or holding tank, or inside a portable restroom holding tank? Occasionally I've heard instances of a dog or other animals falling into an abandoned or open tank, but I haven't heard any reports from pumpers about wildlife entrapment in vault toilets. ■





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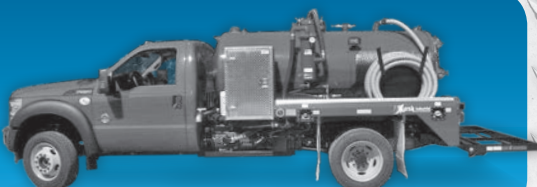
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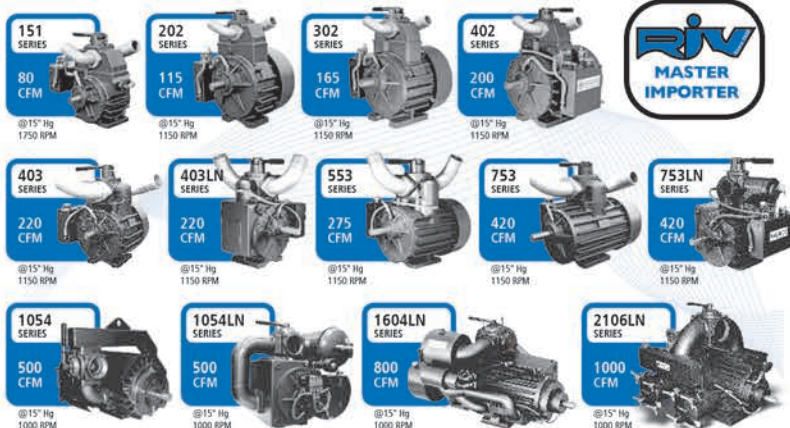


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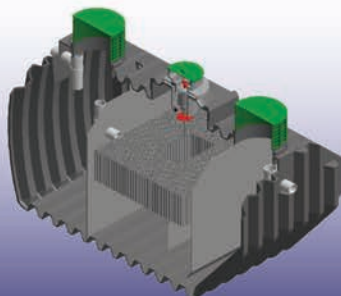


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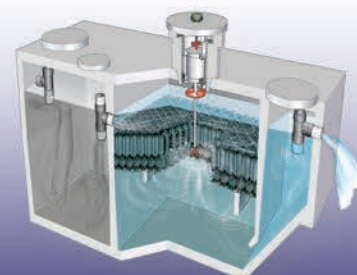
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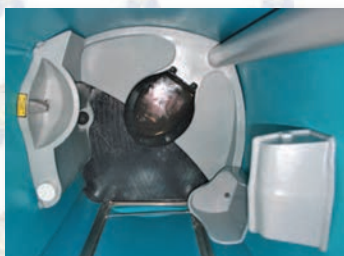


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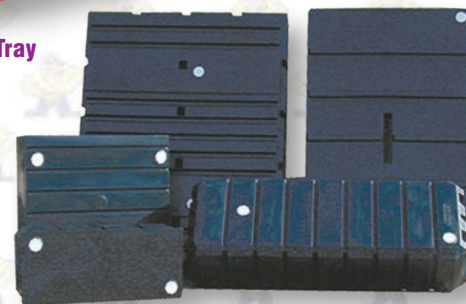
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Paul Cooley juggles the work of 10 different businesses from his headquarters at Grundy Center, Iowa. (Photos by K.C. McGinnis)

# BRINGING HOME THE BACON

From pumping to drain cleaning; portable sanitation to installing; and system inspections to farming, Iowa's Paul Cooley never knows where the daily job board is going to send him

By Giles Lambertson

**P**aul Cooley is an enterprising man with 10 successful ventures running simultaneously. Ten! Most of them emanate from Cooley Pumping, a four-generation, 66-year-old family firm he owns. To describe Paul Cooley as very busy understates the situation. Could he, in fact, have too much on his plate?

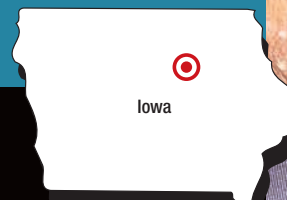
"Some days I feel that way," he says. "We're busy but we just keep on going."

The going began 24 years ago when Cooley took over the pumping company started by his grandfather, Francis Hopkins, in Grundy Center, a rural north-central Iowa community of 2,600. While his grandfather's Ford truck carried an 800-gallon tank, Cooley's newest truck from Imperial Industries is a 2018 Peterbilt 567 with a 4,000-gallon stainless tank and a National Vacuum Equipment 4310 pump. The second rig is a 2014 Peterbilt 365 from Imperial Industries also with a 4,000-gallon aluminum tank, a National Vacuum Equipment 4310 pump and hoist. Neither truck sits idle through the week.

(continued)

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Paul Cooley and Morgan Walitshek of Cooley Pumping / Cooley Sanitation inspect a tank at a restaurant in Conrad, Iowa. One of the company's two Peterbilt service trucks is in the background. Both were built out by Imperial Industries and carry National Vacuum Equipment pumps.

The trucks are bigger, and so is his service territory. "I look at the service area on the map we have here in the office," Cooley says, laughing. "We are way beyond the 30-mile circle on the map." The company trucks now drive up to 60-70 miles from their home base, and the service-circle continues to widen.

"It has gotten bigger and bigger all the time. It can go a little farther yet," he explains. "Des Moines is out. Ames is out. But we are starting to push toward Cedar Falls. I just keep getting calls and hate to say no."

The pumping company's rolling stock isn't all that's grown. While the headquarters still is in Grundy Center, the company shop is 7 miles away

**“ I try to stay in the office, but I’m a hands-on guy. Being in the office is not what I like to do. Still, I need to be in the office to deal with every entity instead of just doing septic work. ”**

#### PAUL COOLEY

somewhat fewer systems were installed last year because of persistent rains. The installations constitute a quarter or more of his septic business

Most onsite work is building replacement systems after aging ones fail to pass time-of-sale inspections. Only 20 percent of systems installed by Cooley are for new residences. Three-bedroom homes require 1,250-gallon tanks and four-bedrooms, 1,500-gallon units. Each will need pumping every three or four years, ensuring more future business.

#### SERVICE EXPANSION

Real-estate transfer inspections is one emerging specialty, a job Cooley undertakes himself. When a property is sold, the Iowa Department of Natu-

in Morrison, a town of about 100 people. A 70-by-120-foot building constructed there more than a decade ago now shares 4 acres with 30-by-54-foot and 54-by-54-foot-square buildings erected to house equipment and materials. Yet another company site is in Reinbeck, 5 miles on the other side of Morrison, with an 85-by-120-foot warehouse.

The septic business constitutes 70 percent of Cooley's overall enterprise, with residential systems claiming 70 percent of the work. His company also installs 80-100 septic systems most years — though

(continued)

Walitshek lays the hoses for a restaurant septic tank pumpout.





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ral Resources requires a septic system's distribution box be uncovered. Lines are inspected for cracks to see if effluent is flowing out as intended and groundwater is not infiltrating. Cooley also certifies the system hasn't been altered to allow effluent to run directly into a ditch or creek.

"It doesn't matter if it's a new property that hasn't been inspected in two years or has been in the family for a hundred years," Cooley says. He typically completes 250 certification inspections annually.

Paul's Potties has also grown out of the septic business. That enterprise has an inventory of more than 1,000 restrooms from PolyJohn. The company has four restroom service trucks, Ford F-550 models from 2018 and 2019, each built by Imperial Industries and carrying 775-gallon waste and 400-gallon freshwater aluminum tanks. There are also two Imperial Industries 300-gallon waste and 150-gallon freshwater aluminum slide-in units used on skids.

Cooley says his initial goal was an inventory of 500 restrooms, but the workload dictated more.

"Wherever the number goes is OK. We're not scared," Cooley exhibits one mark of an entrepreneur: a willingness to take risks. A reward of risk-taking is that people notice.

For example, Pioneer Seed Co. noticed Paul's Potties and approached Cooley Sanitation more than a dozen years ago with a proposal to service the 800 portable restrooms the company employs during its June to August hybrid corn detasseling season. It was cheaper and easier for Pioneer to outsource the cleaning. Soon other hybrid seed companies came calling.

## Wastewater wisdom

*Harvard Business Review* writes books about managing companies. The writers come up with such pithy counsel as "get three things done before noon" and "fire yourself." Paul Cooley's homegrown management philosophy is pretty much on par with the business deans.

Asked what he would tell like-minded business people who want to work for themselves, the first piece of counsel from the busy owner of Cooley Pumping / Cooley Sanitation is perhaps the most predictable. "You have to prepare to put in the hours. If you want a 9-to-5 job, that ain't going to happen."

Other gems: "You have to calculate your risks," and "You should only hire people who are smarter than you."

Over the last almost-quarter century, Cooley has successfully melded learned management principles with instinctive organizational habits. Consequently, he surrounds himself with competent personnel. "I have excellent staff in the office keeping a good eye on things. I have a good foreman who oversees the septic tank installations and quoting bids and making sure each job is complete."

Cooley studied business methods and principles for two years at a junior college. So, is he good at delegating responsibility? "I try to be," he says, hinting that it's still work in progress. It's been hard for him to step away from fieldwork. "I try to stay in the office, but I'm a hands-on guy. Being in the office is not what I like to do. Still, I need to be in the office to deal with every entity instead of just doing septic work."

He freely acknowledges that one of his office assets is his wife, Deborah. "The garbage routing and portable toilet routing require a lot of attention. My wife is good with that. She's good with logistics."



Perhaps the fastest-growing service Cooley Sanitation offers is cleaning drains and lines. The company has three RIDGID SeeSnake cameras, a Spartan Tool 18 gpm, 4,000 psi trailer jetter, and several Spartan Tool cable machines; and it uses two Ford Transit service vans for this side of the business.

Cooley says a surge in drain cleaning business over the past two years is partly because of an informal relationship with a Waterloo plumber. "They send a lot of work our way." As he increasingly encroaches on urban markets in the area, he anticipates additional growth in line-clearing work.

Morgan Walitshek connects a suction hose on a job site. Cooley Pumping drivers travel much farther for jobs these days over when the company was started 66 years ago.

## TRASH TALK AND EVENT CENTER

Most pumpers handle anything wastewater related, but Cooley moved into solid waste collection. Two late-model garbage trucks make curbside collections in seven local communities. Commercial customers generating waste on a larger scale contract for one of Cooley Sanitation's 500 trash containers. Construction crews or residential customers with greater demands can get Poynette Ironworks 20- or 30-yard roll-off containers from Cooley's inventory of 80 bins. He has two roll-off trucks (Peterbilt) with Galbreath hoists.

Cooley also runs a recycling center in Reinbeck with designated receptacles for cardboard, paper, glass, plastic, tin cans and scrap metal. Even worn-out appliances are accepted. If a Reinbeck recycler can't make it to the center, Cooley trucks will pick up the recyclables curbside once a week. It's a customer service, but not profitable at the moment. The industry is experiencing one of its major market fluctuations. "Recycling sort of went in the tank after China quit buying," Cooley says.

In a departure from sanitation work, Cooley 13 years ago teamed with a restaurateur friend, Tom McLean, to start the mobile food-prep business. Like the rest of his undertakings, PT Grillers has enjoyed success, so much so that the two partnered last year in a new venture — an event center in a landmark building on a highway on the outskirts of Reinbeck. A former restaurant, the building was modernized and renovated and is a venue for public performances, reunions, birthday parties and weddings. "We've had six couples married in the building already," Cooley says.

Most recently, Cooley partnered with a friend in the construction industry to build a public storage complex in Morrison. The units are used for campers, cars, boats and the like.



“ Winter is slower around here. Nothing is growing in the fields. The ground is frozen so there aren't many septic installations. Pumping slows down some because if you aren't having trouble of some kind, you aren't going to call for a pump.”

PAUL COOLEY

### CROSS-TRAINING

The 45-year-old Cooley accomplishes all of this enterprising work with 20 employees. While there may be specialists among them, most are cross-trained. Employees are more valuable when they are knowledgeable about all of the machinery in the yard: They can be on call for weekend calls.

So, that's a complete summary of what Cooley is up to these days. Unless you want to talk about the 160-acre farm he operates. It is a corn and bean row-crop operation without livestock, which makes growing and harvesting seasons especially busy times. "Winter is slower around here," Cooley says. "Nothing is growing in the fields. The ground is frozen so there aren't many septic installations. Pumping slows down some because if you aren't having trouble of some kind, you aren't going to call for a pump."

Of course, in winter months people still need to eat, get married, clean out their drains, and have their waste hauled away and garbage picked up, so things are still relatively busy. In which of these fields of endeavor is Cooley most comfortable? If he could only run one business, which would it be?

"The septic service," he says without hesitation. Part of its appeal is that it is a family thing. "My grandfather started it, and it is near and dear to my heart. My wife (Deborah) is involved in it. My son, Josh, who's working on a business degree in college, helps in the summer. My oldest daughter, Rachel, in high school, does a lot of mowing of property and washes the portable toilets. And my youngest daughter, Megan, is in eighth grade and she is willing to help ... if she has to." ■

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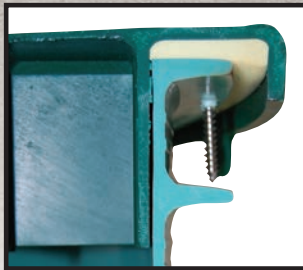
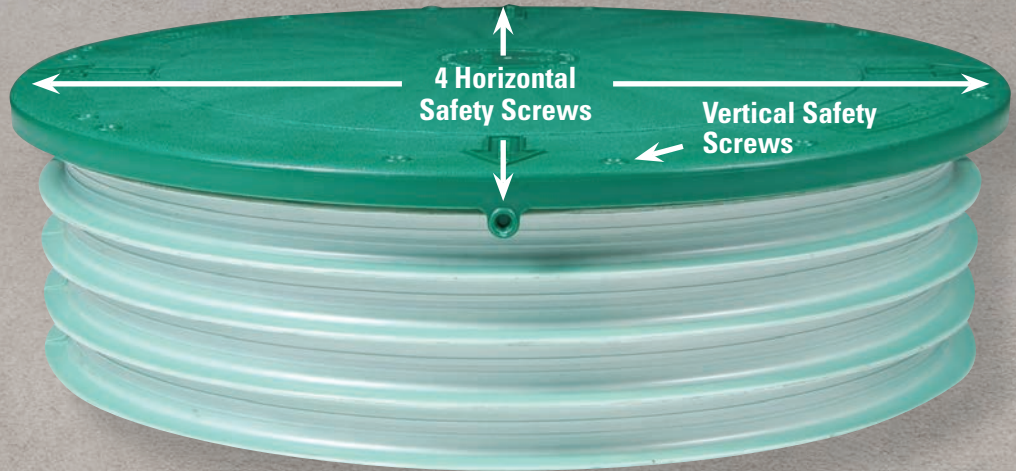


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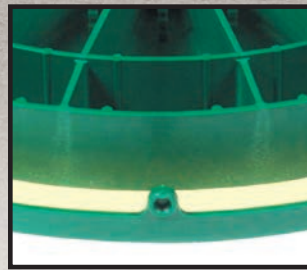
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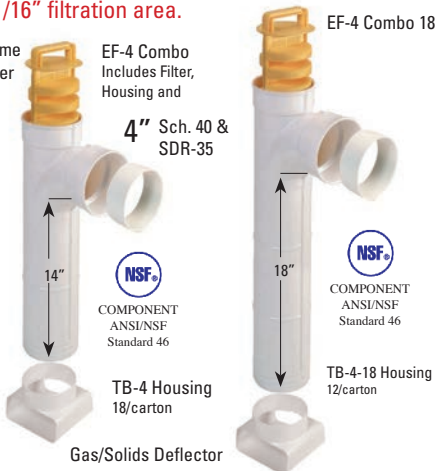


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Rodney Koop is a founder/CEO of The New Flat Rate. For more information, visit [www.thenewflatrate.com](http://www.thenewflatrate.com).

# Are the Big Guys Coming for Your Customers?

**Build a customer retention program to fight back against large would-be operators who want to set up shop in your territory and take over** **By Rodney Koop**

I was speaking with the owner of a sizable pumping franchise who told me how, in the early days, they would use the truck engine to pull the vacuum to empty septic tanks. He also said he blew a couple of engines by not shutting it off before it sucked sewage right into the carburetor and slammed the pistons.

We have all made costly mistakes, and before modern equipment came along, we did whatever we had to do, didn't we? Early advice to pumpers went something like this: "Remember, always park the truck downhill from whatever you are pumping so gravity will keep a siphon going. It's easier on the truck that way." Well yes, it's easier, but when the siphon overtakes a truck that should have been emptied after the last job, it's quite a mess.

Later on, advice to pumpers went something like this: "Remember, never park downhill from a septic tank."

## THEY'RE GUNNIN' FOR YOU

These aren't the only kind of mistakes that can drain profits for pumpers if you follow poor advice. I recently asked the question, "Who wants your customer, and what will they pay to get them?" I posed it to some sharp plumbers, and I was quite surprised by the answer. For example, I was told that "everyone," including insurance companies, utility companies, home warranty companies, property management companies, big-box retail stores and large contracting companies all want your customer and are willing to pay almost anything to get them.

It reminds me of what Lee Iacocca once said, "Americans want efficiency, and they will pay any price to get it." I might rephrase that to read, "Big business wants your customer, and they will pay any price to get them."

Investors are looking for places to put to work what seems like unlimited dollars. The enormous number of big money investment accounts, both private and public, need a place to call home, a place to reproduce more dollar bills — many millions of dollar bills to be exact. So, if your business looks lucrative, then it's "Katy, bar the door," because here come the plunderers!

Your business is profitable and, believe it or not, it looks easy to those with deep pockets. How hard can it be to drive a shiny truck up to a house, hook up a hose, fill the truck and find a place to empty the tank? Or, how hard can it be to send out a plumber when your kitchen sink leaks? Let's face it — some of you make it look mighty easy. So why wouldn't big money want a piece of your action? They do want it.

## THE PLAN

Of course, they could offer to buy you out and some have done that. However, it's more likely they'll put together a business plan, which starts with massive advertising campaigns. An aggressive ad campaign can in-

Lee Iacocca once said, "Americans want efficiency, and they will pay any price to get it." I might rephrase that to read, "Big business wants your customer, and they will pay any price to get them."

clude radio and TV, of course, but also direct mail, newspaper, Sunday paper inserts, magazines, flyers and door hangers. Then, out come the big guns like billboards and the telemarketers we all hate so much.

Those are traditional ad programs, and they seem to have enough money behind them that they work very well. The other marketing tactic I call submarine marketing. It's the kind that has almost no cost at all because it's done by companies who already have a relationship with your customer.

For example, I mentioned utility companies and insurance companies. What they have going for them is sending out a monthly invoice to their customer base, some of which are part of your customer base. They have very little cost when they simply print an ad or coupon and drop it in the envelope with the utility bill or take a page in the utility or insurance newsletter to offer their new services. So, will they get vacuum trucks and take my customers? Most likely they will go after the plumbing service first and/or drain cleaning, then on to septic services. Either way, we need to always be looking down the road.

So, let's get to work. First let's keep what we have. Build a wall around your fort by starting a customer retention program. You must build from a position of strength. That means you don't want customers leaving.

## YOUR NEWSLETTER

Do what the utility companies do and send a newsletter every month. It's not so hard to do and doesn't require lots of resources. Think of it like your very own magazine, and you can be on the cover. Put a recipe in it and a tip each month. Start with one page if you need to. Include a coupon for your services.

That is the start. Of course, make sure you have free billboards on your trucks with your phone number big and bold. Most need to start as simply as that.

Now here is the most valuable piece of advice I have, so I will end with this: Call your customers twice a year just to say hello. Tell them you appreciate them, and ask if they have a favorite recipe you can put in an upcoming newsletter to share with everyone.

That, my friend, is the beginning of a dynasty. ■



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# Federal Farm Bill Includes Funding for Rural Onsite System Upgrades

By David Steinkraus

**W**hen President Donald Trump signed the 2018 Farm Bill in late December, it included a present for onsite installers. A few paragraphs in the bill allow low-income, rural homeowners to access a pool of money for upgrading or replacing their onsite wastewater systems. The law allows grants of up to \$20,000.

Because this is a piece of federal legislation, that doesn't mean the cash drawer is open. The way Congress works, a bill creating a program is separate from the appropriations bill that allocates money for a purpose.

Passing appropriations bills is the next step when the new Congress convenes in January and begins work on the next federal budget, says Eric Casey, executive director of the NOWRA - National Onsite Wastewater Recycling Association. On this issue, NOWRA partnered with the Rural Community Assistance Partnership, which led the push for the onsite program.

The need for an appropriation means supporters of the program still have work to do, Casey says. "Most of the time, congressmen are more disposed to support something if they think their constituents support it," he says.

But getting an appropriation will also require time because new committee members must be appointed. Also, members of the Senate and House will have their own agendas to push. Agriculture Committee members in both houses would be receptive to messages supporting the onsite program, Casey says.

"Overall this is an excellent bill. It's a really good opportunity to clean up some of the worst individual onsite problems that are out there among the low-income population," he says.

The onsite program was added to a long-standing federal law that provides money to fix problems with rural drinking water wells. That program was small with only about \$5 million appropriated, Casey says. Sen. Cory Booker, D-N.J., tried to push that up to \$100 million, and a committee settled on \$20 million. It is this pool of money that the onsite program will now also be able to tap — if the appropriation goes through.

Farm bills are approved every five years by Congress to set policy and programs for the agriculture industry.

## Michigan

A bill to create a statewide septic code went nowhere in the final days of the 2018 legislative session and died when the Legislature adjourned.

The bill, HB 5752, had been stalled in committee since the spring. In the last few weeks of the session, it was moved to the Local Government Committee chaired by Rep. James Lower, R-Cedar Lake, who sponsored the bill. Lower's committee sent his bill to the full House of Representatives, but the House did not take it up as legislators went through the final few days of rapid votes, group pictures and farewell speeches.

The bill drew opposition from Michigan health departments. They say the legislation was drafted behind closed doors and without their input. Departments worry about increased costs should the state take over code administration, and they worry about the erosion of local control and losing the ability to adjust their rules to closely fit local environmental conditions.

As a result of the November elections, a new Legislature took office in January. Should Lower wish to pursue the issue, he must start from scratch by introducing another bill and seeing it through the committee process.

A health department official tells *Pumper* the idea of a statewide code has been talked of for about 15 years but has never come this close to passing the Legislature.

## Montana

As part of a penalty for spilling millions of gallons of water into the Gallatin River, a resort will fund three environmental projects for businesses near Bozeman. The 2016 spill at the Yellowstone Club happened when a pipe failure at a holding pond dumped about 30 million gallons of treated water into the river. The water was not a health hazard, but the spill violated pollution rules, officials say.

In 2017 the club was fined \$256,700 for the spill. One quarter of that was paid in cash, and the rest, about \$192,000, is being used for the environmental projects. The club will pay about \$174,000 to upgrade the septic systems at three area businesses. The difference between the amount paid for the work and the penalty assessed will be used for a trout habitat project on another fork of the river.

## New York

With one ordinance passed, the nonprofit Lake George Association is encouraging other local governments to require onsite system inspections when a property is sold. Last fall, the town of Queensbury approved such a rule after three years of discussion. If a property-zoned waterfront residential is sold, the town will inspect the onsite system. Only if the system has passed an inspection in the previous three years will it be exempt. While untreated stormwater is the greatest threat to water quality in the lake, failing onsite systems can also pose health and water-quality problems, says a letter from the association.

Also in New York, the Cayuga County Board of Health voted to fine a farmer \$1,000 for a septic violation in worker housing. The board says farmer Joseph Tidd did not have an adequate septic system for the building. Human waste was discharged into a manure lagoon on the property. Last February, Tidd was given a month to correct the problem, but that order was moot when the town of Owasco cited him for not having a building permit or an





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occupancy permit for the structure, reports *The Citizen* of Auburn. Last fall, officials found Tidd had been housing workers in the building after he had received the citations. Tidd may receive half of the fine back if he complies with the order to fix the septic issue.

### Washington state

The city of Bainbridge Island won a round in its effort to establish new development regulations for environmentally sensitive lands. The City Council adopted new rules in 2018. Those rules included restrictions in areas considered critical to recharging aquifers. Almost all of the island, across from Seattle on the Puget Sound, falls into a critical area. The Kitsap County Association of Realtors challenged the rules. It says the regulations would significantly limit what a property owner can do, and it alleges the regulations had no scientific basis. The Central Puget Sound Growth Management Hearings Board disagrees and ruled in favor of the city.

### Ontario

In the first year of a four-year inspection program in Algonquin Highlands, a contractor looked at 1,095 onsite systems and found 426 of them, or 39 percent, required some kind of remedial action. Typically that action was a simple pumpout, according to *The Times* of Minden. Inspectors found 24 metal tanks, and nine of those systems were more than 50 years old. Additional investigations were required at 39 properties, and homeowners were advised to call in a qualified professional for an in-depth examination. Some of the systems were affected by tree roots, and in other cases, driveways had been poured over drainfields. The community is about 168 miles northeast of Toronto. ■

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# Tough Septic Site?



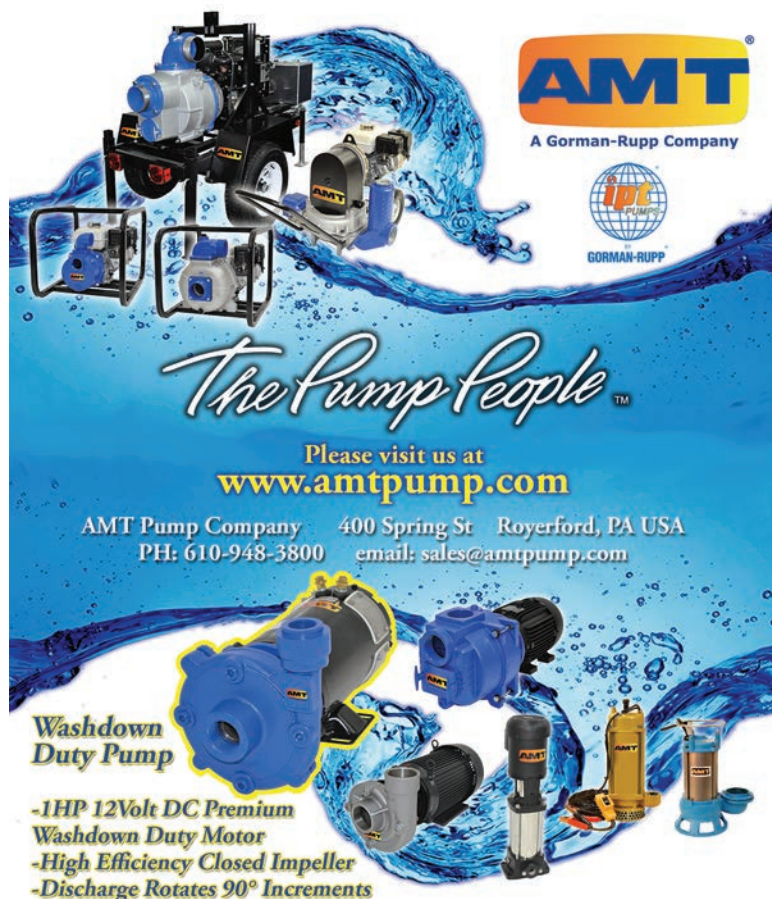
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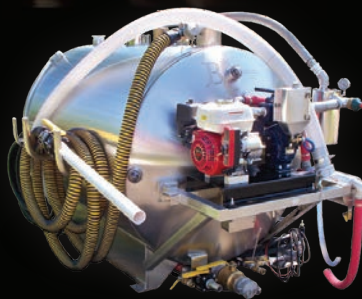
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Billy Williams founded Willco Septic in 1997. He is shown with an International truck built out by Mid-Continent Truck Sales with a 2,500-gallon steel tank and a Masport pump. (Photos by Ryan West)

Oklahoma's Willco Septic doesn't like to turn down work and is always willing to take on new wastewater services to keep customers happy

By Ken Wysocky

# THE HOMETOWN HELPERS

**B**illy Williams points to many factors in the growth of his company, Willco Septic, since its founding in 1997: Building a diverse array of services. Investments in quality equipment. Offering customers a five-year warranty on septic system installs. A 24- to 48-hour response-time guarantee.

But there's another less tangible reason for the success of his business located in Choctaw, Oklahoma: He's not afraid to admit when he's made a business mistake, and then does something to fix it.

A good example is the company's entry into septic system installations about eight years ago. Williams had considered doing installations for a long time. But for a young entrepreneur who avoids debt if at all possible to minimize overhead, the thought of investing in a backhoe and other equipment was daunting.

"I just wasn't comfortable with spending that kind of money," says Williams, 43. "Then I finally realized how much business we were losing — probably up to 100 installs a year. I was just putting money in someone else's pocket. Had I been brave enough to make the jump, I could've done installs right away."

(continued)

## Willco Septic Choctaw, Oklahoma

**OWNER:** Billy Williams

**FOUNDED:** 1997

**EMPLOYEES:** 4

**SERVICES:** Septic and grease trap service, onsite installations

**SERVICE AREA:** 100-mile radius around Oklahoma City

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

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**Left:** The Willco Septic crew stops to service a commercial account using an International truck built out by Mid-Continent Truck Sales with a 2,300-gallon steel tank and a pump from Elmira Machine Industries / Wallenstein Vacuum.

**Below:** The Willco Septic crew includes, from left, Billy Williams, Shirley Williams, Raymond Smith and Nathan Chapman.

**Right:** Raymond Smith uses a pole to agitate a tank during a pumping job. The system uses TUF-TITE risers and lids.

About eight years ago, Williams bought a 2005 Case 580 Super M backhoe and an International 4700 truck and earned a state certification for installations. The initial investment? Roughly \$50,000 — about \$35,000 for the backhoe alone.

“But I paid off the backhoe pretty quickly,” he says. “When I look back now, I realize that not keeping installs in-house was a big mistake, especially because you also miss the opportunity to provide service work for those install customers. I probably would’ve been fine if I’d started doing installs right away ... but you live and you learn.”



## FOCUS ON AEROBIC SYSTEMS

Now Willco Septic does 80 to 90 system installations a year on average, most of them aerobic systems because the region’s soil contains high levels of clay. “Deciding to do installations was a game-changer for us,” he says.

For older homes that have a 1,000-gallon tank with a failing system, Williams installs an aerobic system behind the existing tank. “We save the 1,000-gallon tank. ... It makes for a really good system,” he says. “It makes really good water.”

Aerobic systems provide opportunities for future service in the form of inspections; inspectors must be certified by the state of Oklahoma. During the first two years after the installation, Oklahoma regulations require an inspection every six months. The fees for those inspections are built into the installation price, Williams says.

During an inspection, Williams’ to-do list includes things like checking the sludge level in the tank, making sure there’s chlorine in the chlorinator, testing the water in the tank to make sure there’s enough chlorine in it, opening up the control box to make sure there’s no corrosion or broken wires and ensuring that the aerator works, Williams says.

After the initial two-year period expires, homeowners can pay \$275 a year for two inspections, one every six months, or opt to do their own in-



spections. “A lot of homeowners do it themselves and only call us if they find something wrong,” Williams says.

A good marketing campaign helped build the installing business. Williams says installations jumped significantly when he hired a marketing company, BigWing, to redesign his website. “They specifically target people looking for aerobic septic system installations,” he explains. “Installations

increased 50 to 75 percent since they started doing more targeted website advertising.”

“If potential customers feel comfortable talking to someone on the phone, the odds are we’re going to be talking to them on their property later.”

## STARTING SMALL

Judging from Williams’ success, there haven’t been too many missteps along the way since he started Willco, short for Williams’ company. He was familiar with the industry because his late grandfather, Orvil Irwin, ran a septic pumping company called Irwin Septic Tank Cleaning.

## BILLY WILLIAMS

Williams started working for his grandfather at 10 or 12 years old. “I’d help him dig out trucks and get full of sand and dirt on weekends,” he recalls. “When I got older and worked for him during summers, he’d let me drag hoses around and uncover the tank (lid).”

When Williams graduated from high school, he tried several different jobs. But an opportunity arose when his grandfather started slowing down in his late 70s. No one in the family was ready to continue in the business, so he figured he should fill the void by starting his own company.

“So I saved up \$10,000 and bought a 1989 Ford F-700 with a 1,300-gallon steel tank,” he reports. “I ordered the tank heads and had the tank barrel rolled by a company in Oklahoma City. My grandpa always built his own

(continued)



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trucks, so he helped me build this one, too. I got into the business pretty cheaply with that truck, which was important because I didn't have much money and didn't want to go deep into debt."

When his grandfather passed away, his grandmother kept active the Irwin Septic phone number and referred all customers to Williams. Between that, phone book advertising and word-of-mouth referrals, he slowly gained traction and built a business.

"When I started out, I didn't have much overhead," he says. "So if I did five to 10 tanks a week, I was fine — it didn't take a whole lot of money to keep me going." But as the company's customer base grew, so did expenses. And when five to 10 tanks a week slowly morphed into five to 10 tanks a day, Williams knew he needed employees and more vacuum trucks. As such, he went from one to four service vehicles and one to four employees within the first five years.

## EQUIPMENT LIST

Willco Septic currently runs four vacuum trucks. Mid-Continent Truck Sales built out two: one on a 2001 International 4300 chassis with a 2,500-gallon steel tank and a Masport pump and the other on a 2003 International 4400 chassis with a 2,300-gallon steel tank and a pump, manufactured by Elmira Machine Industries / Wallenstein Vacuum.

The other two trucks are a 2000 GMC 7500 with a 2,100-gallon steel tank and a Wallenstein pump built by Specialty B Sales and a 2000 Sterling 9500 built by 27th Trucks and carrying a 4,000-gallon steel tank and Masport pump.

In addition, the company owns a 2008 Chevrolet 2500 HD service truck, a 2005 Case 580SM backhoe, a 24-foot flatbed trailer made by Wild West



## Standing behind your work

With nearly a dozen competitors within a 50-mile radius, Billy Williams — the owner of Willco Septic in Choctaw, Oklahoma — does everything he can to differentiate his company. That includes offering a five-year warranty on septic system installations and a 24- to 48-hour response-time guaranty.

"If we screw up something on an installation, we'll fix it for free," Williams says. "I'm confident enough in our labor and the materials we use to warranty our work. In fact, we've never had to go back to fix something since we started doing installs about eight years ago."

Judging from Willco Septic's ratings on Angie's List (all A grades on 13 customer reviews), Home Advisor (51 reviewers gave the company an average score of 4.8 out of five possible total points), and Google (five-star ratings from three reviewers), it's easy to see why Williams has no qualms about warranties.

Moreover, Willco Septic strives to provide same-day pumping service and guarantees no more than a 48-hour response time. Doesn't that stretch the small crew to its limits? It does, he admits. "But we make do," he says. "If a customer just can't wait because it's an emergency, we find a way to get there that day. I've been out at customers' homes at 2 or 3 a.m."

Providing that level of service demands great employees, and Williams says he has great ones in Nathan Chapman and Raymond Smith; they've been with the company for nine and 12 years, respectively. "They're my right-hand guys," he says. "They do anything they're asked and go above and beyond for customers."

"For instance, this past weekend, we received an emergency call at 5 p.m.," Williams notes. "So Raymond — who lives 25 miles away and was already at home relaxing — drove back to the shop and made another service call. That's just what we do to keep customers happy."

Trailers, a 28-foot enclosed trailer built by Haulmark Trailers, a 1999 International 4700 flatbed service truck and a 2018 John Deere 35G mini-excavator.

For septic systems, Willco Septic buys concrete tanks and NuWater aerobic systems (made by Enviro-Flo) from RN Concrete Products. Williams prefers to use chambers made by Infiltrator Water Technologies and risers made by TUF-TITE and Polylok. Furthermore, the company uses a Clover point-of-sale credit-card processing system from Clover Network.

## JUST SAY YES

Williams says part of his company's success stems from his willingness to do jobs other companies won't do. "We've built a reputation for taking on the tough jobs, like septic tanks that haven't been pumped in 30 years," he explains. "There are some really old houses around here with old-timers who just never pumped their tanks. ... They say they didn't know it was necessary."

"To clean tanks like that, we use reverse vacuum and backflush with water," he continues. "You've got to run a lot of water. ... For a 1,000-gallon tank, you might run 200 to 300 gallons of water. Sometimes it'll take two or three hours to clean them — we run into that quite often."

The upside from a business standpoint is that systems unmaintained for so long generally suffer from failing lateral lines. As a result, a pumping job can easily lead to a system installation. "They go hand in hand (pumping and installations)," Williams says. "We sell a lot of jobs out of the tank trucks."

Williams also gives major credit to his mother, Shirley Williams, who answers the phones and generally keeps things running smoothly. She's not

*(continued)*





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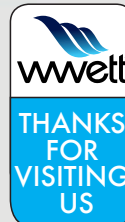


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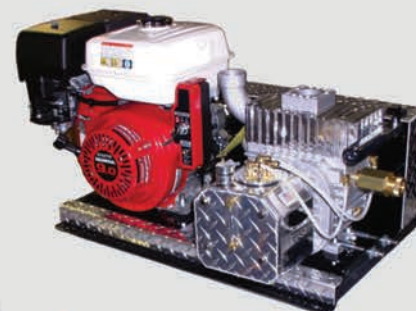
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only great with people on the phone, she is also very knowledgeable about septic systems and knows what questions to ask customers, Williams says.

"A little thing like that can make such a big difference," Williams says. "If potential customers feel comfortable talking to someone on the phone, the odds are we're going to be talking to them on their property later. My mom is probably one of the main reasons we've grown and retained customers as long as we have. She's so good with people and can run the show when I'm gone."

As many pumpers can attest, that's no small matter. With three children, Williams is less interested in putting in megahours these days and more interested in carving out quality family time. "I don't want to work nonstop every day — and we could easily work 24 hours a day, seven days a week," he says. "I did that a lot early on because I had to hustle to get business. But now that we're established, I can slow down a little bit. You need to spend time with your family."

No more rapid growth

With that philosophy in mind, Williams isn't interested in seeing Willco Septic get much bigger, because that would require taking on all the associated headaches that can come with further growth.

"We're pretty happy where we are," he says. "We now get to do things as a family that we probably couldn't do if I worked for someone else. We've got two great guys on board (Nathan Chapman and Raymond Smith) who know what they're doing, plus my mom, which gives us the opportunity to take time to go fishing and hunting and enjoy other outdoor activities as a family."

The bottom line: Williams doesn't regret deciding to enter the wastewater industry. "I've met a lot of great people over the years and they know us and our name and we're respected around here," he continues. "This has been a good business and I'm really happy I got into it." ■

**“ I don't want to work nonstop every day — and we could easily work 24 hours a day, seven days a week. I did that a lot early on because I had to hustle to get business. But now that we're established, I can slow down a little bit. You need to spend time with your family. ”**

**BILLY WILLIAMS**

## MORE INFO

### 27th Trucks, Inc.

305-835-9030  
www.27th-trucks.com

### Elmira Machine Industries / Wallenstein Vacuum

800-801-6663  
www.wallensteinpumps.ca  
(See ad page 17)

### Infiltrator Water Technologies, LLC

800-221-4436  
www.infiltratorwater.com

### Masport, Inc.

800-228-4510  
www.masportpump.com  
(See ad page 25)

### Mid-Continent Truck Sales

800-414-5365  
www.vacuumtrucksales.com

### Polylok, Inc.

877-765-9565  
www.polylok.com

### Specialty B Sales

800-364-7307  
(See ad page 79)

### TUF-TITE, Inc.

800-382-7009  
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(See ads, pages 27, 67)



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MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
 <p><b>Anua</b> PO Box 77457 Greensboro, NC 27417 336-547-9338 info@anuainternational.com www.anuainternational.com <a href="#">See ad, page 44</a></p>	PuraSys SBR	400 to 25,000	2015	PuraSys SBR ships as boxed kit for installation in any septic tank. Kit includes control panel, floats, pre-drilled siphon pipe, PVC pipe stands, siphon/sludge pump, aerator, and drainfield pump. The system can be used for new construction or be retrofitted into existing tanks to renovate biologically failed drainfields. PuraSys SBR uses a unique batch process, where the treatment steps are done in a timed, sequential manner. The process is energy efficient since treatment occurs as needed, using intermittent aeration, mixing, and settling. Certified to NSF/ANSI 40 Class I, and to NSF/ANSI 245 (nitrogen reduction). Residential and commercial configurations available.	Western Hemisphere
	Puraflo Peat Fiber Biofilter	150 to 25,000	1993	The Puraflo peat fiber biofilter system is versatile and reliable. The peat media provides biological, physical, and chemical treatment, with high level pathogen removal. The system is green-friendly and uses little to no energy. It is ideal for full-time, seasonal, or intermittent use in residential or commercial projects. The odor-free, natural system will overcome site limitations such as a seasonal high water table, shallow soils or restrictive layers, and is suitable for environmentally sensitive sites. Installation is simple with factory assembled modules and can be configured as a combined treatment and effluent dispersal system. Certified to NSF/ANSI 40 Class I.	
 <p><b>BioMicrobics Inc. &amp; SeptiTech (subsidiary)</b> 16002 W 110th St. Lenexa, KS 66219 800-753-3278 • 913-422-0707 Fax: 913-422-0808 sales@biomicrobics.com www.biomicrobics.com <a href="#">See ad, page 55</a></p>	FAST	150 to 2.5 million	1996	FAST wastewater treatment systems & FITT-ee (energy-efficient) systems are integrated into a standard septic tank with the SRF feature to reduce electricity usage up to 45% and recirculation of nitrified wastewater for extra denitrification. The stability of the FAST treatment process with fully-submerged, fixed-film media and the effectiveness of activated sludge treatment helps in certain applications due to the unique characteristics of the wastewater. Available from 150 to 2,000,000+ gpd applications, technology biosolids treatment and sludge digestion enable cost-effective treatment with less maintenance and easily scales up into MyFAST and MacroFITT configurations for larger residential and commercial flows. The effluent meets secondary water quality requirements and can be distributed to a soil or water reuse applications.	U.S. and 70+ Countries
	BioBarrier	500 to 100,000+	1996	Sustainable Water Engineering dramatically simplifies the settling, screening, direct aeration and ultrafiltration of the wastewater treatment process to remove 99.9% of the contaminants. Installed above or below grade, locally-sourced tanks and certified to NSF/ANSI 40 class 1, NSF/ANSI 245 (nitrogen reduction), and NSF/ANSI 350 standards, this blackwater/greywater treatment system establishes the material, design, construction and performance requirements for onsite residential and commercial applications. The BioBarrier MBR and HSMBR, from 500 GPD to 100,000+ GPD flows, meets water quality requirements that can be used for restricted indoor water use and/or unrestricted outdoor water use.	
	STAAR	500 to 27,000+	1996	SeptiTech STAAR (Smart Trickling Anaerobic/Aerobic Recirculation) Filter Systems are designed for both multi-family domestic and high-strength commercial wastewater from 100 to 150,000+ gpd for residential and commercial wastewater treatment applications. The STAAR Filter Commercial Systems utilize partially submerged media to treat high organic loads that integrate with other technologies and accessories. The simple, automatic and reliable equalization and clarification process treat high organic loads that integrate with other technologies and accessories. The biological trickling filter technology also maintains low levels of Nitrate-N with all below-grade components that fit in readily available concrete, plastic or fiberglass tanks. SeptiTech's "Smart" technology allows the system to go into a sleep mode that will dial down activity and eventually shut all power off until normal flow conditions are detected. This allows the STAAR system to achieve lower operating costs and power requirements.	






MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
 <p><b>Delta Treatment Systems</b>            9125 Comar Dr.            Walker, LA 70785            800-219-9183 • 225-665-6162            info@deltatreatment.com            www.deltatreatment.com</p>	DF Series	500 to 1,500	1993	The process occurs entirely within the self-contained treatment unit which is comprised of outer mixing tank and a cone-shaped settling chamber. Raw, unsettled domestic wastewater enters directly into the mixing tank where mixing occurs through an air distribution system. The mixed liquid then enters the settling chamber from the bottom. The settling chamber maintains a quiet condition which allows solids to settle down and re-enter the mixing chamber for more processing. The liquid is hydraulically displaced upward and is discharged as a clear, odorless treated water which meets or exceeds state water quality standards.	AL, AK, AZ, BC, BWI, CA, CO, FL, GA, HI, ID, IL, IN, IA, KY, LA, ME, MI, MD, MN, MO, MS, MT, NC, NM, NV, NY, OH, OK, ON, OR, TN, TX, UT, VA, WA, WI, WV
	ECOPOD	500 to 100,000	2006	The ECOPOD Advanced Wastewater Treatment System is a FFBR (fixed film bioreactor) system that houses an engineered PVC media specifically designed to treat domestic wastewater. Five models accommodate daily flows ranging from 500 to 1,500 gpd, with customizable options available for commercial applications up to 100,000 gpd. The ECOPOD is ideal for individual residential installations, cluster designs, and small-to-medium commercial wastewater treatment applications. Self-contained, it can be inserted into a standard-sized septic tank or vault providing quiet, odorless operation. ECOPOD is certified to ANSI/NSF International Standards 40 and 245, FHA and VA acceptable, and suitable for intermittent usage.	
	Enviro-Aire Series	500 to 1,500	2005	The plant achieves treatment by a flow through process. Raw sewage enters a primary chamber, which has a hydraulic capacity of 346 gallons, providing a retention time of 16.6 hours. This chamber provides for separation of heavy, easily settled solids as well as floatable materials such as grease. Settleable solids accumulate on the bottom and floatable solids accumulate on the surface. Effluent from the clear layer flows into an aeration/mixing chamber with a 28-hr retention time. An aeration system provides for oxygenation of the primary effluent with the wastewater in the aeration/mixing chamber. Air is introduced by passing from the air pump to the air drop-line located in the chamber. The mixed liquor enters the settling chamber at the bottom and travels upward toward the discharge pipe. The quiet condition allows solids to settle down and re-enter the mixing chamber.	IL, LA, MS, TX
 <p><b>Eliminite, Inc.</b>            PO Box 359            Belgrade, MT 59714            888-406-2289            info@eliminite.com            www.eliminite.com</p>	Eliminite Grizzly	Up to 50,000	1997	The Eliminite Grizzly system is designed for large-scale, high-volume, high-strength commercial applications where advanced nitrogen reduction is necessary. The system was originally developed to serve high-altitude commercial and resort developments in the Rocky Mountains where winter temperatures linger at or below 0 degrees F, and seasonal use patterns/dramatic fluctuations in flow and wastewater strength are the norm. It functions with little operator input and simple maintenance. C-Series systems serve high-altitude highway rest areas, resort communities, golf courses, ski areas, mixed-use residential communities, restaurants, RV parks, worker camps, corporate retreats, business parks and convenience stores. It is suited for use in multi-stage treatment trains and as a means of reducing waste strength prior to conveyance to municipal treatment facilities.	U.S.
 <p><b>Eljen Corporation</b>            125 McKee St.            East Hartford, CT 06108            800-444-1359            info@eljen.com            www.eljen.com  <a href="#">See ad, page 34</a></p>	GSF	Scalable to site conditions	1982	The Eljen Geotextile Sand Filter (GSF) is an advanced wastewater treatment and dispersal technology. The GSF's unique design provides treatment and dispersal in the same footprint while keeping installations easy and maintenance minimal. Independent testing has shown that the Eljen GSF's performance meets NSF/ANSI Standard 40 and provides advanced treatment of septic tank effluent to better-than-secondary levels.	North America and Australia





MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
<b>Fuji Clean USA</b> 41-2 Greenwood Rd. Brunswick, ME 04011 207-406-2927 Fax: 207-406-2929 info@fujicleanusa.com www.fujicleanusa.com	CE	450 to 2,700 (6 Models)	2010	Fuji Clean's CE model series averages 50,000 systems being installed annually worldwide. The popularity is driven by a small footprint (about 7' x 4' for CE5), low power draw (1.1kWh/day for CE5), easy plug & play installation and simple, efficient O&M and consistent treatment (95% BOD and TS removal, NSF 40 certified, no preceding septic tank). There are no moving parts in the "contact filtration" treatment process. One 80 L/min external air blower (FujiMAC Series) introduces oxygen into aerobic chambers and powers internal air lift pumps, which facilitate sludge return and discharge of clean effluent.	Most States
	CEN	450 to 1,900 (4 Models)	2010	Fuji Clean's CEN technology provides enhanced denitrification into its standard contact filtration treatment process and produces a consistent high quality effluent (NSF 40/245 certified: 5 BOD, 6 TSS and 10 TN) from straight septic wastewater – no proceeding septic tank necessary. There are no moving parts in the treatment process. Extremely compact (about 8' x 4' for CEN5), lightweight (about 475 lbs for CEN5), highly maneuverable and features a low power draw (one 80 L/min blower drawing 1.1 kWh/day for CEN5), plug & play installation and optional wireless telecommunication package that offers both dial and text capabilities. A proprietary electrolysis-based phosphorus reduction option is also available with this system.	
	CE6KG	6,000	2015	Fuji Clean's largest CE commercial system, is now available to supplement its existing CE21 (1,900 gpd) and CE30 (2,700 gpd) models. The CE6KG, which can treat up to 6,000 gpd, uses the same treatment technology, process flow and one-tank structure as the smaller CE systems and can be squeezed into the tightest of sites. The footprint size on the CE6KLG is only 36' x 6.5' (including built-in septic tank).	
 <b>Hoot Systems, LLC</b> 2885 Highway 14 E Lake Charles, LA 70607 888-878-4668 • 337-474-2804 questions@hootsystems.com www.hootsystems.com <a href="#">See ad, page 53</a>	LA-Hoot	500 to 1,000	1986	LA-Hoot is an improved version from the original Hoot Treatment System introduced in 1984. Results are better than 10/10 mg/L on CBOD and TSS, with more than a 95% reduction of the wastewater influent. Two-year warranty/NSF Standard 40 certified.	Nationwide
	H-Series	500 to 1,200	1995	Five-stage, one piece system with a pretreatment tank, aeration chamber, final clarifier, optional disinfection device and a pump tank. Results are better than 5/5 mg/L on CBOD/TSS. A 99% reduction on CBOD and TSS. Marketed as BNR in MD and FL with Biological Nitrogen Reduction of >50%. Three-year warranty/NSF Standard 40 certified.	
	ANR	450 to 900	2007	Adds Advanced Nutrient Reduction to the Hoot System. Results of 5.8 mg/L on TN, better than 10/10/10 mg/L on CBOD/TSS and Total Nitrogen. Areas where 10 mg/L is the discharge limit for Total Nitrogen, the federal level for drinking water. Three-year warranty/NSF Standard 40 and 245 certified.	
	MTS	3,000 to 500,000	2011	The Hoot MTS, (Media Treatment System) is a series of larger treatment systems that were tested and verified under NSF Standard 40/245 protocol. The Hoot MTS is used for Residential, Commercial and High Strength wastewater applications and can also be set up to treat for Ammonia, Total Nitrogen, Phosphorus and other discharge parameters. Instead of selling a one size fits all box, or multiple boxes, Hoot can deploy our MTS technology into locally sourced concrete castings, retrofit into existing structures or fabricated for new, poured in place vessels. We have substantial experience with RV parks, camps, convenience stores, restaurants, shopping plazas, schools, churches, brewery/winery tasting rooms and other challenging applications.	
 Wastewater Treatment Solutions Founded on Innovation. Anchored by Service. <b>Jet, Inc.</b> 750 Alpha Dr. Cleveland, OH 44143 800-321-6960 • 440-461-2000 Fax: 440-442-9008 email@jetincorp.com www.jetincorp.com <a href="#">See ad, page 18</a>	J 1500 BAT Media Plant; J 500-800 PLT	500 to 1,500		Jet's residential wastewater treatment plants employ the Jet BAT Process Media which provides the ideal environment for nature's own bacteria to thrive and grow. Great numbers of these living microorganisms attach themselves to this submerged structure to create a "biomass" that rapidly treats wastewater. The Jet 700++ Aerator provides the mixing and fresh oxygen the microorganisms require to live while the Jet BAT Process Media provides the environment to support the microorganisms that allow natural filtration and biological reduction to take place. Available in concrete and plastic.	U.S. and International
	R-Series	450 to 1,500			



MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
 <b>MicroSepTec</b> <b>MST Manufacturing, LLC</b> 23362 Medero, Ste. C Mission Viejo, CA 92691 877-473-7842 • 949-297-4590 Fax: 949-916-2093 microseptec@microseptec.com www.microseptec.com	EnviroServer	600, 1,200 and 2,500	1998	The EnviroServer ES is a combination of primary treatment, flow equalization, and secondary treatment by both fixed-growth and suspended-growth aerobic processes. The system consists of five chambers in one compact pre-engineered unit. The first chamber is a primary clarifier, the second chamber is the first aeration zone, the third chamber is the second aeration zone, the fourth chamber is the final clarifier, and the fifth chamber is the effluent chamber where an optional pump(s) and disinfection device may be installed.	AZ, CA, DC, DE, MD, NJ, NV, PA, VA
 <b>NextGen Septic, LLC</b> 1776 Mentor Ave., Ste. 400E Cincinnati, OH 45212 513-262-9506 sales@nextgenseptic.com www.nextgenseptic.com	NextGen Advanced	1,200		NextGen Advanced with Septigen technology is a three-stage, compact, wastewater treatment solution that saves water, saves money and saves the environment. In stage one, simultaneous biological aerobic and anoxic treatment of the organic material breaks down solids and treats nitrogen and phosphorous through a combination of proprietary biomedica and high-capacity aeration technology. Then, membrane separation phase treats water for nitrogen and phosphorous in addition to filtrating and treating any remaining suspended solids. Ozone disinfection technology is used as a final stage to ensure treated water meets surface discharge and reuse standards.	Nationwide
	NextGen Retrofit	1,200		NextGen Retrofit with Septigen technology can be installed into any approved, existing septic tank and works to repair a clogged soil drain field in as little as 8-12 weeks. By eliminating the cost of excavation and tank removal as well as the cost of replacing or extending the drain field area, NextGen saves the homeowner tens of thousands of dollars on installation alone. And, the low-maintenance design gives them peace of mind that the field will remain clear in the future. NextGen technology features a compact, stand-alone, automated, two-stage treatment system for domestic sewage that removes nitrogen phosphorous.	
	NextGen Community	1,500 to Unlimited		NextGen Community Septic Systems are advanced multi-home sewage treatment systems that are hybrids between a packaged treatment plant and an advanced septic system. The system design eliminates the need for large septic tanks in each yard, creates a stand-alone treatment system that removes traditional contaminants plus nitrates and phosphorous, and provides graywater irrigation usable for community greenspace. The NextGen system uses Septigen technology, a patent-pending, multi-stage treatment process that includes simultaneous aerobic and anoxic treatment, high-capacity aeration, membrane separation and disinfection.	
 <b>Norweco, Inc.</b> 220 Republic St. Norwalk, OH 44857 800-667-9326 • 419-668-4471 Fax: 419-663-5440 email@norweco.com www.norweco.com	Hydro-Kinetic	500 to 1,500		The Hydro-Kinetic wastewater treatment system employs innovative Hydro-Kinetic filtration technology to produce the cleanest, most consistent effluent quality available. They Hydro-Kinetic system uses the extended aeration and attached growth processes to treat wastewater, and features innovative nitrification-denitrification technology. The Hydro-Kinetic FEU system is the only NSF/ANSI Standard 40 and 245 certified residential wastewater treatment system to pass two consecutive back-to-back tests without performing routine maintenance for a full 12 months. It quietly, efficiently and automatically pretreats, aerates, flow equalizes and filters all wastewater returning only the purest effluent back to the environment.	North America, Central America, South America, Europe, Africa and Middle East
	Singulair Model 960 and Model TNT (Total Nitrogen Reduction)	500 to 1,500		The Singulair system is the state-of-the-art alternative to a troublesome septic tank for domestic wastewater treatment. Employing the extended aeration process, the Singulair plant provides flow equalization, pretreatment, aeration, clarification, tertiary filtration and optional chemical addition within a single precast concrete tank. Designed for domestic wastewater flows ranging from 500 to 1,500 gpd, performance of the Singulair system is certified by NSF International (Standards 40 and 245) and the Canadian Standards Association.	
	Singulair Green Model 960 and Model TNT (Total Nitrogen Treatment)	500 to 1,500		The Singulair Green aerobic treatment system incorporates Norweco's advanced aerobic treatment process into a durable, watertight polyethylene tank. It is ideal for new or retrofit applications and can be installed easily in the most difficult jobsite with just a backhoe. Incorporating support ribs and inherently strong arch shape, the durable Singulair Green tank will provide decades of reliable performance. Designed for domestic wastewater flows up to 600 gpd, with treatment performance meeting or exceeding the strictest state and county requirements, Singulair Green is certified by NSF International.	



MANUFACTURER	BRAND	GPD	RELEASED	DESCRIPTION	DISTRIBUTOR LOCATIONS
<p>(Continued)</p> <p><b>Norweco, Inc.</b>  220 Republic St.  Norwalk, OH 44857  800-667-9326 • 419-668-4471  Fax: 419-663-5440  email@norweco.com  www.norweco.com</p>	Singular R3 and Singular R3 Green	500 to 1,500		The Singular R3 REDUCES water consumption, REUSES treated effluent and RECYCLES water to conserve and recharge our groundwater. It provides the cutting-edge solution to chronic water shortages and reduces energy costs of water and wastewater treatment. The system efficiently treats incoming wastewater to the highest level for restricted indoor and unrestricted outdoor use.	North America, Central America, South America, Europe, Africa and Middle East
 <p><b>Orenco Systems, Inc.</b>  814 Airway Ave.  Sutherlin, OR 97479  800-348-9843 • 541-459-4449  www.orenco.com</p>	AdvanTex AX20	Up to 500 (more if clustered)	2001	Consistent, reliable wastewater treatment under real-world conditions. Easy to operate and maintain. Fits small yards. Works in poor soils. No power-hungry, noisy blowers. No activated sludge to manage or pump. No discharge of untreated sewage during peak flows or emergencies. Produces clear effluent that's reusable, depending on local regulations. Ideal for single-family homes, small commercial properties, new construction, and repair/replacement projects. Limited, three-year warranty. Optional 24-hour web-based monitoring system. Can be installed in multi-unit arrays to handle higher flows.	350 locations worldwide
	AdvanTex AX-RT	Up to 625 (more if clustered)	2010	Compact, "plug and play" wastewater treatment system. Super easy to install with few connections to make. Fits on small lots, reducing the cost of excavation and installation. Low power costs. Low maintenance costs. No power-hungry, noisy blowers. Produces clear effluent that's reusable, depending on local regulations. Reliable nitrogen reduction. Able to meet stringent permit requirements. Competitively priced for use in homes with up to six bedrooms or on small commercial properties. Ideal for new construction or repair/replacement projects. Service provider oversight through Orenco's VeriComm remote telemetry control panel and monitoring system. Can be installed in multi-unit arrays for higher flows.	
	AdvanTex AX100	Up to 5,000 (more if clustered)	2002	Ideal for municipal treatment and a variety of commercial projects, including subdivisions, apartments, golf courses, parks, campgrounds, schools, churches, resorts, and other businesses. Consistent, reliable treatment, even under peak flows. Compact package, small footprint for small sites. Low maintenance requirements, low power use, low life-cycle costs. Produces clear effluent that's reusable, depending on local regulations. Backed by Orenco's commercial AdvanTex program that includes trained installers and operators, plan reviews with designers, complete checklists for installation and start-up, and 24-hour service provider oversight via Orenco's remote telemetry controls. Limited, three-year manufacturer's warranty. Can be installed in multi-unit arrays for higher flows.	
 <p><b>Presby Environmental</b>  The Next Generation of  Wastewater Treatment Technology</p> <p><b>Presby Environmental</b>  143 Airport Rd.  Whitefield, NH 03598  800-473-5298  info@presbyeco.com  www.presbyeco.com</p>	Advanced Enviro- Septic	Scaleable		Advanced Enviro-Septic (AES) is a passive treatment and dispersal system. This effective and non-mechanical onsite system is designed for residential, commercial, and community use. AES has been proven to remove up to 99% of wastewater contaminants without the use of electricity or replacement media. AES does this quickly and naturally establishing multiple bacterial treatment environments throughout the system that break down and digest wastewater contaminants leaving the septic tank. This passive process allows the system to discharge highly purified wastewater, preventing soil clogging and groundwater contamination. AES has third party certifications from NSF, Cebedeau, BNQ, and SAI Global.	U.S., NZ, AU, Canada, France, Belgium, Columbia, Mexico, Spain
	EnviroFin	Scaleable	2016	EnviroFin is a passive onsite wastewater treatment and dispersal system designed with a small footprint, to ship easily, and exceed NSF/ANSI Standard 40 treatment. The effluent enters EnviroFin's Fin Distribution Unit (FDU) where it settles and breaks down suspended solids. Skimmer tabs located at the FDU's perforations prevent grease and suspended solids from leaving the FDU. The FDU distributes the effluent into the Treatment Fins which are filled with coarse green plastic fibers, creating a massive bacteria treatment area. The Treatment Fins have perforated air duct pipes across the top of each fin providing oxygen to promote bacterial growth.	U.S. and Puerto Rico





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2500 gal. alum. tank, auto, 407 cfm pump



**2020 Freightliner M2**, 300 hp, diff lock, air ride,  
2500 gal. steel hoist tank. auto, 512 cfm pump



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

US Patent# 5,885,452  
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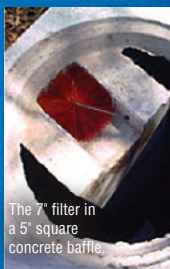
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Sizes:  
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Patent# 6,811,692



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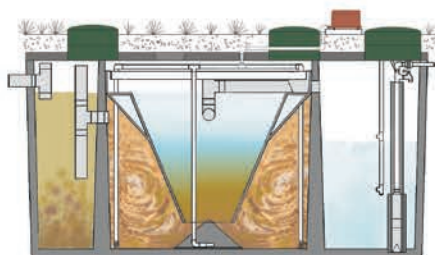


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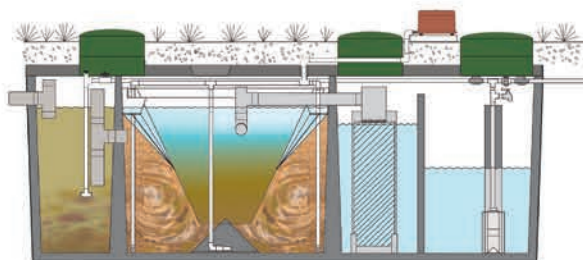
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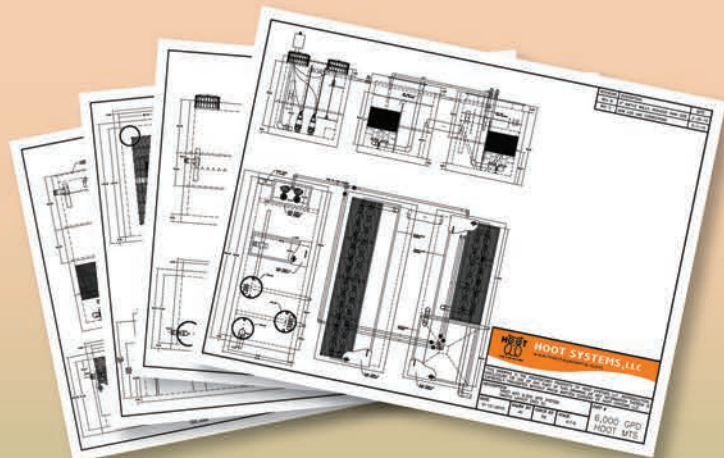
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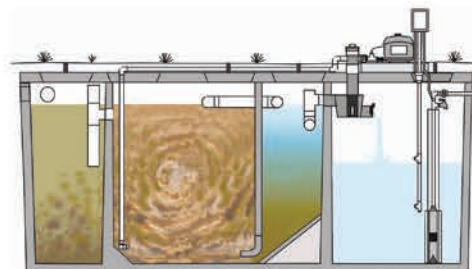


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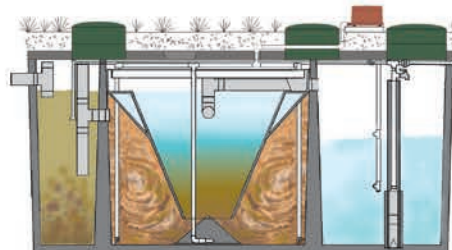


## LA - Hoot

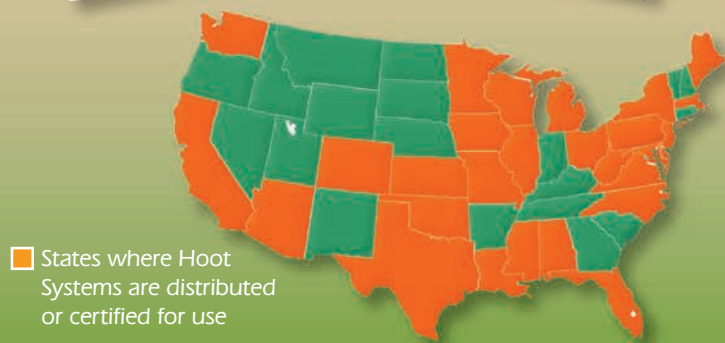


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[www.aowainfo.org](http://www.aowainfo.org); 334-396-3434

## Arizona

Arizona Onsite Wastewater Recycling Association  
[www.azowra.org](http://www.azowra.org); 928-443-0333

## Arkansas

Arkansas Onsite Wastewater Association  
[www.arkowa.com](http://www.arkowa.com)

## California

California Onsite Wastewater Association  
[www.cowa.org](http://www.cowa.org); 530-513-6658

## Colorado

Colorado Professionals in Onsite Wastewater  
[www.cpow.net](http://www.cpow.net); 720-626-8989

## Connecticut

Connecticut Onsite Wastewater Recycling Association  
[www.cowra-online.org](http://www.cowra-online.org); 860-267-1057

## Delaware

Delaware On-Site Wastewater Recycling Association  
[www.dowra.org](http://www.dowra.org)

## Florida

Florida Onsite Wastewater Association  
[www.fowaonsite.com](http://www.fowaonsite.com); 321-363-1590

## Georgia

Georgia Onsite Wastewater Association  
[www.onsitewastewater.org](http://www.onsitewastewater.org); 706-407-2552

Georgia F.O.G. Alliance  
[www.georgiafog.com](http://www.georgiafog.com)

## Idaho

Onsite Wastewater Association of Idaho  
[www.owaidaho.org](http://www.owaidaho.org); 208-664-2133

## Illinois

Onsite Wastewater Professionals of Illinois  
[www.owpi.org](http://www.owpi.org)

## Indiana

Indiana Onsite Waste Water Professionals Association  
[www.iowpa.org](http://www.iowpa.org); 317-889-2382

## Iowa

Iowa Onsite Waste Water Association  
[www.iowwa.com](http://www.iowwa.com); 515-225-1051

## Kansas

Kansas Small Flows Association  
[www.ksfa.org](http://www.ksfa.org); 913-594-1472

## Kentucky

Kentucky Onsite Wastewater Association  
[www.kentuckyonsite.org](http://www.kentuckyonsite.org); 855-818-5692

## Maine

Maine Association Of Site Evaluators  
[www.maineese.com](http://www.maineese.com)

Maine Association of Professional Soil Scientists  
[www.mapss.org](http://www.mapss.org)

## Maryland

Maryland Onsite Wastewater Professionals Association  
[www.mowpa.org](http://www.mowpa.org); 443-570-2029

## Massachusetts

Yankee Onsite Wastewater Association  
[www.maowp.org](http://www.maowp.org); 781-939-5710

## Michigan

Michigan Onsite Wastewater Recycling Association  
[www.mowra.org](http://www.mowra.org)

Michigan Septic Tank Association  
[www.msta.biz](http://www.msta.biz); 989-808-8648

## Minnesota

Minnesota Onsite Wastewater Association  
[www.mowa-mn.com](http://www.mowa-mn.com); 888-810-4178

## Mississippi

Mississippi Pumpers Association  
[www.mspumpersassociation.com](http://www.mspumpersassociation.com); 601-249-2066

## Missouri

Missouri Smallflows Organization  
[www.mosmallflows.org](http://www.mosmallflows.org); 417-631-4027

## Nebraska

Nebraska On-site Waste Water Association  
[www.nowwa.org](http://www.nowwa.org); 402-476-0162

## New Hampshire

New Hampshire Association of Septage Haulers  
[www.nhash.com](http://www.nhash.com); 603-831-8670

Granite State Designers and Installers Association  
[www.gsdia.org](http://www.gsdia.org); 603-228-1231

## New Mexico

Professional Onsite Wastewater Reuse Association of New Mexico  
[www.powranm.org](http://www.powranm.org); 505-989-7676

## New York

Long Island Liquid Waste Association, Inc.  
[www.lilwa.org](http://www.lilwa.org); 631-585-0448

## North Carolina

North Carolina Septic Tank Association  
[www.ncsta.net](http://www.ncsta.net); 336-416-3564

North Carolina Portable Toilet Group  
[www.ncportabletoiletgroup.org](http://www.ncportabletoiletgroup.org); 252-249-1097

North Carolina Pumper Group  
[www.ncpumpergroup.org](http://www.ncpumpergroup.org); 252-249-1097

## Ohio

Ohio Onsite Wastewater Association  
[www.ohioonsite.org](http://www.ohioonsite.org); 888-294-0084

## Oregon

Oregon Onsite Wastewater Association  
[www.o2wa.org](http://www.o2wa.org); 541-389-6692

## Pennsylvania

Pennsylvania Association of Sewage Enforcement Officers  
[www.pa-seo.org](http://www.pa-seo.org); 717-761-8648

Pennsylvania Onsite Wastewater Recycling Association  
[www.powra.org](http://www.powra.org)

Pennsylvania Septage Management Association  
[www.psma.net](http://www.psma.net); 717-763-7762

## Tennessee

Tennessee Onsite Wastewater Association  
[www.tnonsite.org](http://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

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

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

### 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

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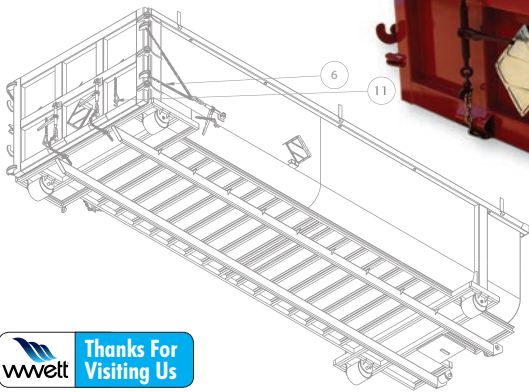
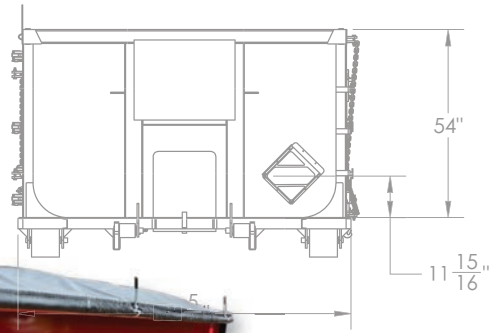
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Based in Racine, Wisconsin, Erik Gunn writes for magazines on business and other topics.

# Incentivize Septic Driver Bob to Kick the Smoking Habit or Take Off a Few Pounds

Even the smallest pumping companies can start a wellness program to cut insurance and absenteeism costs as well as help employees on the road to health and happiness. **By Erik Gunn**

**N**ot so long ago, workplace-based wellness programs were the hot new thing in holding down health care costs for employers. And while they may receive less attention today, they haven't gone away.

Instead, their focus is broadening, says Julie Stich, an associate vice president at the International Foundation of Employee Benefit Plans based in Brookfield, Wisconsin. And some employers are broadening their perspective on how to value the benefits wellness programs provide.

"There has been on and off over the years a focus on whether there is a decent return on investment" from wellness programs, Stich says. Some employers view that as the sole yardstick for measuring their worth and insist that programs should return in cost-savings three times what they cost to put in place.

That can be hard to demonstrate, though. It takes as long as three to five years for programs to establish themselves, and in the meantime, employers' insurance plans may change due to shifts in the insurance marketplace, making the connection even murkier.

But increasingly, Stich says, employers view the benefits of wellness programs as part of a company's overall culture and whether employees feel positive about their workplace.

Health screenings that are typically part of workplace wellness programs do help companies save money by reducing sick time and promoting preventive medical care to head off more serious illness.

## VALUE ON INVESTMENT

Instead of "return on investment," employers are beginning to measure the benefit of such programs by considering "value on investment," or VOI, Stich says.

It may be more difficult to directly prove wellness programs reduce turnover or boost productivity, but she says they do appear to be connected at least indirectly.

"We see that having a strong wellness program and a culture of wellness at your organization can lead to better outcomes in some of these areas, and not only in health care costs."

In fact, an International Foundation of Employee Benefit Plans survey from 2017, the most recent one available, finds that of employers providing wellness programs, 75 percent say they do so primarily to promote employee health and well-being. Only 25 percent say their primary goal was to control or reduce health-related costs.

The same survey tracked the kinds of wellness programs employers

provide. Free or discounted flu shots led the list, with 77 percent of employers providing that benefit, the survey found. Other wellness benefits, and the percentage of employers in the survey that provide them, included:

- Chiropractic services coverage – 62 percent
- Community charity drives/events – 59 percent
- On-site events/celebrations – 58 percent
- Wellness competitions like walking/fitness challenges – 51 percent
- Healthy food choices in cafeteria or vending machines – 44 percent
- Standing/walking work stations – 42 percent
- Wearable fitness trackers – 23 percent.

**“** You don't need to have this massive budget to start a wellness program. You don't need to have a dedicated staff person to start a wellness program. It can be more grassroots, and it can start small and grow to something bigger. **”**

**Julie Stich**

As that survey shows, and other research has found, the concept of wellness programs itself is stretching.

"There's more of a growing awareness that wellness is not just tied to physical health anymore, with a flu shot, biometric screening and stop-smoking programs," Stich says. "It's much broader, more holistic than that — when you're looking at an employee's overall well-being."

Those include promoting mental health, providing stress-reduction programs and even considering financial well-being, she says. "Are your employees financially literate? Are they drowning in debt?"

Younger workers are motivated by policies that value time off for volunteering for community service, she observes, and "all of that is being rolled into wellness now."

## SMALL SCALE

It might seem that wellness programs are something mainly for large employers with extensive human resources departments to help design and manage them, but Stich says it doesn't have to be that way.

"You don't need to have this massive budget to start a wellness program. You don't need to have a dedicated staff person to start a wellness program. It can be more grassroots, and it can start small and grow to something bigger."

Take flu shots, for example. Even though wellness is much bigger than



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annual vaccination programs, that can be one place to start. Local hospitals and health care centers can send professionals to come to your office and give flu shots or provide other health screenings, often at little or no charge.

There are other low-tech and low-cost approaches. For instance, employers may want to set up a periodic recreational activity — say, a monthly bowling night.

“We don’t always think about outside social activities as being part of wellness, but it is something that can improve morale,” Stich points out. Such activities also encourage people to become more physically active.

If you contract with a provider of employee assistance programs, or EAPs, they can also be recruited to provide some wellness programming, such as a monthly lunch-and-learn session with various experts on subjects such as stress management or smoking cessation.

The foundation offers a list of wellness initiatives at <https://blog.ifebp.org/index.php/55-wellness-initiatives-for-your-workplace>.

### **INSURANCE BREAKS**

Larger companies sometimes reward employees for taking part in wellness initiatives by reducing insurance premiums. That might not be practical in a small business, but it’s at least worth asking your insurer for options.

That said, some attempts to base employee incentives on wellness have come under federal scrutiny in recent years, and the status of those kinds of programs is uncertain until new guidance comes from Washington, D.C., Stich says.

Perhaps, for now, it’s best to take a broader view, as Stich suggests. What can your business do to make life better for employees — and help them become healthy, wealthy and wise? There might not be any way to measure that in dollars and cents, but the benefits could be priceless. ■



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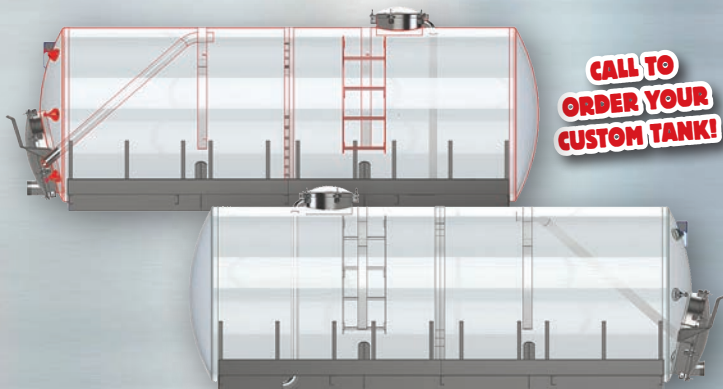
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# Wyoming Pumping Program Helps Keep Waterways Pristine

Local government and a nonprofit organization subsidize septic maintenance to keep the West wild and the rivers clean **By David Steinkraus**

In Teton County, Wyoming, the air is still fresh, the mountains still tall and the streams still clear — and one job of the Teton County Conservation District and the Friends of Fish Creek is helping people maintain their septic systems to keep those streams clear. For a second year, the two organizations (one part of the government and the second a nonprofit) are funding a program that will pay 50 percent of the cost of a septic pumpout up to a maximum of \$150. *Pumper* talked with Carlin Girard, water resources specialist with the conservation district, about the pumping program and about other issues in this part of Wyoming that includes some of the nation's prime wilderness and tourist attractions, such as Yellowstone and Grand Teton national parks.

**Pumper:** In 2017 you had 175 people in the pumping program, and how many people signed up for the program in 2018?

**Girard:** We have roughly 90 to 100 people enrolled this year. So a little less participation than last year, but there are constraints in these programs in terms of slots available from the septic system pumping companies.



Contact Carlin Girard of the Teton Conservation District at [carlin@tetonconservation.org](mailto:carlin@tetonconservation.org).

**Pumper:** How did this program get started?

**Girard:** The impetus arose from a local acknowledgement that septic system maintenance is not something that is regularly talked about. Septic system maintenance is not something that is always done. And we felt that a cost-share incentive program would potentially assist in remedying those two issues by making it easier for neighbors to talk about and by incentivizing some of those folks to get it done.

**Pumper:** Do you have people who haven't done anything to their systems for 30 or 40 years?

**Girard:** We've found a wide range of circumstances. We've had people who thanked us and said they hadn't pumped their systems in over 50 years. Or maybe it's only 10 years, but the cost-share puts a specialist on the site and provides an opportunity to spot potential issues. Another issue here is we have some mobile soils, and in some cases the outlet from the home becomes detached and the septic system is no longer receiving effluent.

**Pumper:** Could you explain "mobile soils?"

**Girard:** Jackson Hole is characterized by an incredibly flat, wide-open

glacial plain. On all sides of that plain are very steep hillsides. There's a wide range of soil types in the valley, but in some locations clay layers are very prone to sloughing and landslides when the ground is saturated and water lubricates the layers. A house may never show any signs of movement because it's all one mass, but the septic system is not strongly attached. There are places in Teton County where it's hard to keep septic systems attached, and you might never know that unless someone else sees that your septic tank has no water in it.

**Pumper:** What trends do you see in the water quality in your area?

**Girard:** Jackson Hole experiences exactly the same type of water-quality issues that many other places in the country have, based on urban-type and suburban development in the town of Jackson. We have agriculture here and residential homes with leachfields and sometimes-high densities. We

also have an incredibly high standard for stream water quality. I often tell people that while we have water-quality problems, I also believe most places in the country wish they had streams like Flat Creek and Fish Creek running through their backyards and towns. While we have problems, they're not at the level of major fish kills or problems that aren't correctible.

**Pumper:** This also helps with tourism, which is the base of your economy, correct?

**Girard:** It's a massive, massive industry here. There's also an appeal for second homeowners or retirees who have the means to go where they want to be and want to be in one of the best natural resources settings in the country. Part of our protection work is also ethical. Our river systems are directly attached to the broader ecology in a way that we're protecting a native fish

population that is almost unlike anywhere else in the country at this time.

**Pumper:** Given what you said about retirements, do you have a housing boom in Jackson?

**Girard:** Ninety-eight percent of the land in Teton County is publicly

In some locations clay layers are very prone to sloughing and landslides when the ground is saturated. ... It's hard to keep septic systems attached, and you might never know that unless someone else sees that your septic tank has no water in it.

— Carlin Girard



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owned, whether in Grand Teton National Park or Bridger-Teton National Forest. So that 2 percent land area is a massive constraint on development. Our county is not completely built out by any means, but we are seeing higher-density development and zoning rules pushing density to certain areas intentionally. Our housing situation here is comparable to New York City and San Francisco in terms of home prices and values.

**Pumper:** Where does onsite wastewater rank in your list of concerns?

**Girard:** I believe it should be a primary focus in terms of water-quality protection. The reason being that we don't have major industries here — point sources of contamination. While we have a cattle industry, we also have ranchers and landowners who are also very committed to stewardship and who have a lot of resources to help them be better stewards. We no longer have a landfill; our trash is shipped to Idaho. So wastewater — and this is my opinion — wastewater as a whole is one of the largest contaminant loads and is almost 100 percent treated and discharged within our county boundaries. That fact alone says to me that if you want to protect your drinking water quality, then look to one of your largest potential sources of contamination.

**Pumper:** What do you mean wastewater as a whole?

**Girard:** We have groundwater injection facilities as tertiary treatment. We also have one of the largest lagoon systems in the state that the town of Jackson operates, and that discharges to the Snake River. If you take a septic system offline somewhere, that septic system may have provided better treatment than the Jackson wastewater lagoon system. That's what I mean: We have to think about all parts of the issue. ■

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**New Hampshire wastewater pros work with state officials to improve industry regulations and look for opportunities to educate an uninformed general public**

*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 New Hampshire Association of Septage Haulers.*

**Name and title:** Darlene Johnson (corporate secretary, treasurer and chief operating officer) with my husband, Paul Johnson (president, chief executive officer, driver, maintenance coordinator)

**Business name:** Best Septic Service, Loudon, New Hampshire

**Age:** 55

**Years in the industry:** 28

**Association involvement:** I've been a member of the New Hampshire Association of Septage Haulers for 28 years. Our company's original owner was a founding father of the association so we had no choice but to slide right in. I've held the positions of secretary and president and am currently secretary and Department of Environmental Services of New Hampshire liaison.

**Benefits of belonging to the association:** Staying connected and informed on regulatory changes at state and federal levels, idea flow between members, and camaraderie. We are not there to discuss or fix rates, which some folks think, but to share experiences, discuss new technologies or changes, assist colleagues on large jobs or when a truck is down, and find good referrals out of our service area. As one example of something we've done, there's a law on the books that says each town must provide access to septage disposal (either their own treatment plant or arrangements with a neighboring town), which the state wasn't enforcing. So we took them to task. We hired a lawyer, created a task force that rewrote the regulation and hired a septage coordinator at the Department of Environmental Services. Currently we are working on an outreach program to educate residents on the benefits of clean groundwater and their responsibility to keep up with maintenance. This will involve a media blitz, so it should be beneficial to all our pumpers and we hope increase membership. And we are awaiting our state's approval to allow us to buy into the health insurance arena as a group, which will hopefully give our business owners much-needed financial relief.

**Biggest issue facing your association right now:** When our state was having disposal troubles and going through massive rule changes, our active membership was at its peak. But now that things are going along status quo, our membership is low. Although we represent roughly 26 percent of our state's licensed haulers — a good number by many standards — the core of active members is small. We try to bring things to the table for all the haulers, like Department of Transportation training, rule education, commercial driver's license drug regulations, insurance information, safety training, etc. So I hope these will get other folks to join.

**Our crew includes:** Our son Eric Johnson is in charge of portable rest-

rooms and the land-spreading operation, Greg Wells is our right-hand man and truck operator, our son Tim Johnson is a part-time truck operator, and Sandy Wesoja handles customer service, dispatch and receivables.

**Typical day on the job:** I spend my time handling office operations, book-keeping, billing, assisting with customer service and dispatch, and rearranging schedules as emergencies come in.

I've got many irons in many fires and am constantly jumping around like a pingpong ball.

**Helping hands – Indispensable crew member:** Eric Johnson is our go-to guy for everything. In the office he can do everything from making appointments to payroll. He can pump septic tanks and shuttle 40-plus restrooms out and about in a weekend. He seamlessly slides from one job to the other when needed and always goes above and beyond with his effort, including spending extra time to make sure things get done. He is the future of Best Septic Ser-



Darlene Johnson

vice and will do a great job when he has the reins.

**My favorite piece of equipment:** The one thing we all love — and we all hate — is the cellphone. It keeps us connected, emergencies can be dispatched with ease and efficiency, site photos can be taken and shared, it's easy to communicate with customers and the office, and it assists in locating unfamiliar addresses or checking on traffic conditions. In some cases, you can see what a house or driveway looks like before you get there. The "hate" part is that it can be invasive. When it rings, it's like, "Oh, no, here we go. Here comes the monkey wrench."

**Most challenging site I've worked on:** We have a lot of old homemade systems around here and camps that have been retrofitted to permanent residences. We have one residence that has a floor trap in the dining room. And sometimes we have to climb under houses and decks to get to septic tanks. You might have 4 feet or you might have 2, so how do you get a stiff hose in and around? The guys usually use a sewer spoon or Crust Buster but you can't put any of that stuff down there when you don't have the space.

**The craziest question I've been asked by a customer:** "I've lost my dentures down the toilet, can you come fish them out? I have to go to work this afternoon." Eric Johnson was asked if there were leeches in the leachfield.

**If I could change one industry regulation, it would be:** Right now there's nothing. We've worked so closely with the state over the years. They've





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listened and been open-minded enough to understand that they can't put in a rule that just prohibits business because they know they want the septic tanks to be maintained. They realize it's a give-and-take. They have to regulate, but they also have to let us run our business and do what we need to do.

**Best piece of small-business advice I've heard:** Do the job well and as promised, have open communication with customers and set a fair price. But my favorite is "Being in business is a huge responsibility, it commands lots of time and devotion, but remember to step away and make time for yourself and family." This was dispensed by our company's founder, Harold Colby. He worked two or three jobs when starting his business and spent so much time away from his family that it became the one thing he regretted in his later years.

**If I wasn't working in the wastewater industry, I would:** Be doing something creative. I've started to paint, do crafts, build things, make cards. The only class I ever failed in high school was typing. I took small engine repair and drafting and was not going to be the person sitting behind the desk — but here we are.

**Crystal ball time – This is my outlook for the wastewater industry:** The industry has come a long way from the grungy pumper days. I hope to see it continue on the path of professionalism and promoting education. As stewards of the environment, we can help maintain clean and safe water for all as long as we share what we know with those who don't, leading to maintenance of onsite wastewater systems that keep our groundwater safe and plentiful. My hope is to see more free-standing septage-only wastewater treatment plants that will replenish local aquifers rather than dumping at municipal plants that shed water into the rivers. ■

- Compiled by Betty Dageforde

*From left to right: Eric Johnson, vice president; Greg Wells, pumper; Paul Johnson, president and CEO; and Jake (dog), mascot. Fleet, from left: 2016 Chevy 1-ton with Best Enterprises tank and pump system; 2000 International F4900 with an Amthor International tank and Battioni pump; 2005 International F7600 with Tri State Tank (Progress Tank) and Battioni pump; 2007 International F7600 with Com Vac Systems tank and Battioni pump; and 2017 Dodge Ram 5500 with a KeeVac Industries tank and pump system. (Photos courtesy of Darlene Johnson)*



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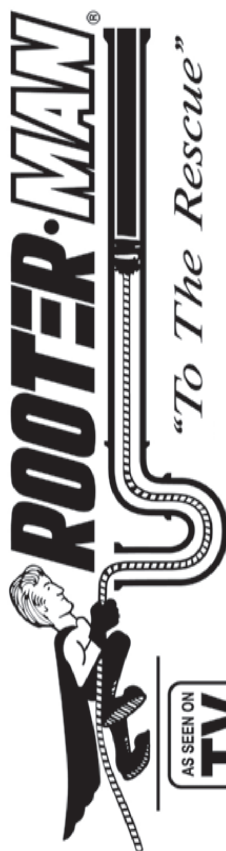
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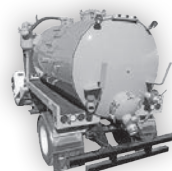
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### 2006 International 9200

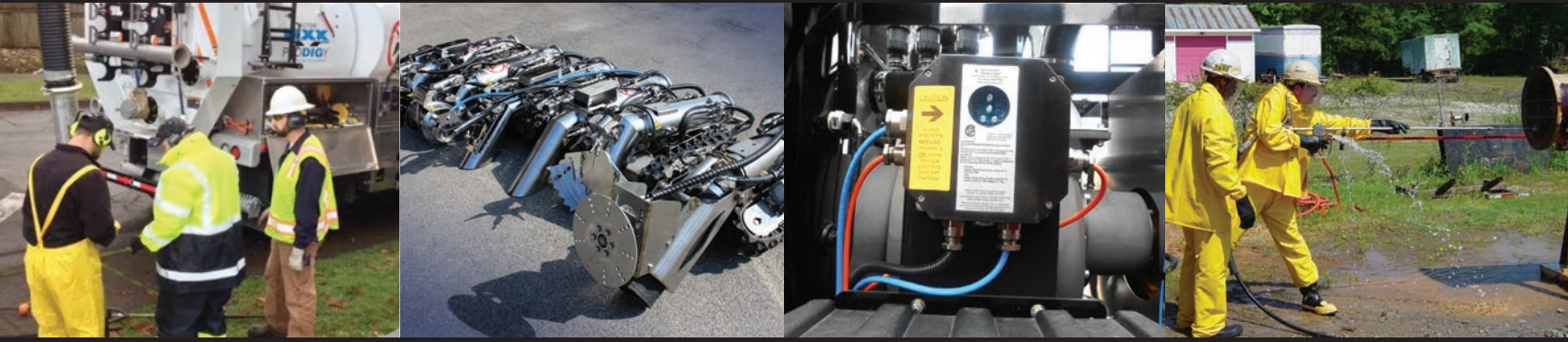
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Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil, Water and Climate and recipient of the pumping industry's Ralph Macchio Lifetime Achievement Award. Email Jim questions about septic system maintenance and operation at [editor@pumper.com](mailto:editor@pumper.com).

# Food and Drink Establishments Test the Skills of Wastewater Professionals

**Your commercial customers may wonder why their septic system requirements are so much more onerous than home treatment. That's when you explain the facts about high-strength waste. By Jim Anderson, Ph.D.**

A reader questioned why restaurants and bars are treated differently in terms of system sizing and often use additional and, in the reader's words, "expensive" pretreatment devices. The straightforward answer to this question is that restaurants and bars almost always have high-strength waste — levels of fats, oils and grease exceeding what are typically found in domestic (residential) wastewater.

As a result, if the sewage generated at taverns and eateries is not treated differently, a more resistant biomat will build up in the treatment area, reducing the soil's ability to accept the wastewater. If left unchanged, this leads to failure of the final soil treatment unit (trenches, beds, mounds, etc.).

The goal for treatment of these high-strength waste streams is to bring them in line with domestic sewage effluent levels delivered from a septic tank. Each state may have variation in their codes about what constitutes high-strength waste, but in general the numbers revolve around levels no greater than 175 mg/L biochemical oxygen demand, 65 mg/L total suspended solids and 25 mg/L FOG.

## NEW INFORMATION

On a personal note, these high-strength wastewater situations were not well understood when I started in the industry. It was recognized that food service and bars impacted soil performance, but it was not known how much. A typical recommendation for restaurants and bars was to simply double septic tank capacity over what would be used for domestic sewage, assuming this would solve the problem. This thinking did not take into account the use of degreasing soaps, very hot water and a variety of other practices, all of which affected waste strength.

We know a lot more now.

For each facility with higher values, the system designer or service provider needs to provide and maintain a system that reduces the values to within these ranges through whatever means necessary. There are practices the restaurant or bar owners can employ to reduce waste strength if they have not already implemented them, which may reduce or eliminate the need for additional pretreatment.

These practices include:

Limiting food particles going down the drain. This means scraping plates and cooking utensils, which is more labor-intensive than having a garbage disposal but can significantly reduce solids entering the system. As indicated earlier, the pre-cleaning reduces reliance on degreasers or cleaners with degreasers added.

High-strength wastewater situations were not well understood when I started in the industry. ... A typical recommendation for restaurants and bars was to simply double septic tank capacity over what would be used for domestic sewage, assuming this would solve the problem.

Installing a grease interceptor either inside or outside the facility. If one is installed as many codes require, regular maintenance is necessary or the resulting sewage can have higher FOG values than not having one! Also, recognize that at high dishwasher temperatures (at my favorite watering hole, where I sometimes pitch in as a dishwasher, temperatures exceed 125 degrees F and are close to 140), grease will not solidify and can pass through the system, including the grease trap. An important design consideration is cooling the wastewater to allow grease to solidify and be captured. This may require more septic tanks in series to help cool the effluent.

A word of caution: If the line outside to the first tank in series is too long, the sewage can cool in the pipe, causing the grease to congeal. In cold climates like I live in, unclogging those pipes can be a cold, expensive and days-long activity that can shut the business down for a time. This is also why there should be an outside clean-out and regular line cleaning or flushing scheduled to avoid unpleasant situations.

If tanks in series are used to cool the effluent, a set of smaller rather than larger tanks can be more efficient at cooling because more surface area is in contact with soil. There are limits to the size of tanks because the solids also need to settle and be captured in the tanks; there are trade-offs between cooling and settling. Some codes require each individual tank be no less in size than 25 percent of total daily flow.

Tanks in terms of total capacity must have a retention time of 3-4 days for domestic sewage. Retention times for high-strength waste will be longer to allow cooling, floatation and settling to occur. This means the total tank capacity must be much larger, depending on the actual waste strength and temperatures. There are recommendations that tank capacity must be four to seven times than a residence with the same level of daily flow. The tanks may also need to be modified somewhat, fitted with higher baffles, constructed so there is more storage area for scum above the liquid level. The final tank in series should have an effluent screen, and there should be a regular solids removal program.



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### SAMPLE THE EFFLUENT

One final recommendation for systems using tanks in series to pretreat high-strength waste is to oversize the drainfield or final soil treatment area by 50 percent and to use a dosing resting system to help reduce or eliminate the formation of a more resistant biomat.

The service provider or designer needs to balance all of this versus cost of incorporation of aerobic treatment units, or media filters to provide additional pretreatment. It is important to recognize that to determine if the system is operating as intended, you must sample effluent to make sure BOD, TSS and FOG are within the necessary limits. In any case, as the reader indicated, a system installed and properly maintained for a restaurant or bar will probably have more components and be more expensive than a similarly sized residential system. ■



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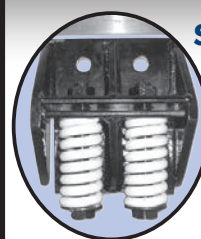
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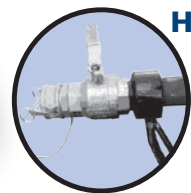
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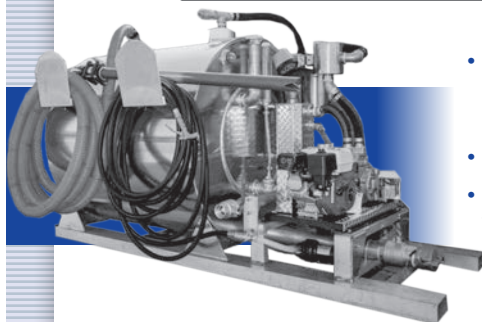
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By Craig Mandli

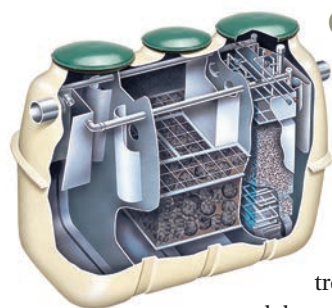
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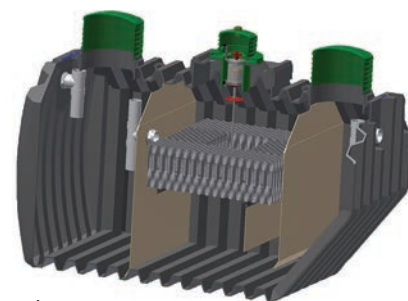


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### Geomatrix Systems SoilAir

**SoilAir** from **Geomatrix Systems** intermittently aerates the drain/leachfield and the surrounding soils rather than constantly aerating wastewater in a tank. This process allows rapid rejuvenation of failed septic systems, extends the life span of new leachfields, and enhances treatment, according to the maker. Systems can serve single and multifamily homes, as well as challenging and high-strength waste streams, such as restaurants, hotels, marinas, laundromats, health care facilities, grocery stores, food processing facilities and convenience stores. **888-764-5247; www.soilair.com.**

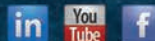


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## DISINFECTION EQUIPMENT

### Knight Treatment Systems White Knight Microbial Inoculator Generator

The **White Knight Microbial Inoculator Generator** from **Knight Treatment Systems** offers an enhanced form of aerobic treatment technology that introduces, cultivates and releases selected microorganisms. It is designed to be simple to install in most septic tanks. It can be used to retrofit outdated ATUs and package treatment plants and enhance the performance of community and high-strength wastewater treatment systems in addition to septage processing facilities. **800-560-2454; [www.knighttreatment.com](http://www.knighttreatment.com).**



### Scienco/FAST - a division of BioMicrobics Inc. - SciCHLOR

The **SciCHLOR** sodium hypochlorite generator system with multi-pass **SciCELL** electrochemical activation technology from **Scienco/FAST - a division of BioMicrobics**

**Inc.** - can produce an available supply of disinfectant solution. It is available in sizes of 10 to 60 pounds chlorine equivalent per day to provide a reliable method of safely producing liquid chlorine for medium to large on-site disinfection applications while surpassing operational efficiency performance requirements, according to the manufacturer. Connected to an incoming water source and with operating modes of batch, continuous, clean, setup and diagnostic, the brine solution passes multiple times through a low-voltage DC electrolytic cell to produce the sodium hypochlorite. When it reaches the low-level float setpoint, the system automatically restarts to replenish its water supply. If no solution is used, the system shuts down to save power. With an 800 ppm FAC sample taken from the generator, the solution killed 100 percent of the *Staphylococcus aureus* and *E. coli* organisms within 30 seconds, according to the maker. **866-652-4539; [www.sciencofast.com](http://www.sciencofast.com).**

## NITROGEN REDUCTION SYSTEMS

### Anua Puraflo Dn

The **Puraflo Dn** peat fiber biofilter system from **Anua** provides enhanced denitrification below 20 mg/L through recirculating 50 percent of the treated effluent back to the front end of the septic tank, according to the maker. Flow proportioning is accomplished through simple adaptations to external plumbing, allowing for a single-pump system with no aerators. In recirculation mode, each module is rated for domestic strength at 240 gpd total hydraulic loading equivalent and 120 gpd forward flow. It can be designed and installed as a combined treatment and effluent dispersal system. Treated effluent exits the modules via weep holes around the perimeter at the module base and flows into the dispersal system situated directly beneath the modules. Available dispersal system options are in-ground pad or mounded pad. **336-547-9338; [www.anuainternational.com](http://www.anuainternational.com).**



### SeptiTech STAAR

**SeptiTech STAAR** (Smart Trickling Anaerobic/Aerobic Recirculation) filter systems are designed for multifamily domestic and high-strength commercial wastewater from 100 to more than 150,000 gpd for residential and commercial wastewater treatment applications. The systems use partially submerged media to treat high organic loads that integrate with other technologies and accessories. The simple, automatic and reliable equalization and clarification process treats high organic loads that integrate with other technologies and accessories. The biological trickling filter technology also maintains low levels of Nitrate-N with all below-grade components that fit in readily available concrete, plastic or fiberglass tanks. Smart technology allows the system to go into a sleep mode that will dial down activity and eventually shut power off until normal flow conditions are detected. This reduces operating costs and power requirements. **207-333-6940; [www.septitech.com](http://www.septitech.com).**



## UV DISINFECTION EQUIPMENT

### Norweco Model AT 1500

The **Norweco Model AT 1500** UV disinfection system helps reduce bacteria levels from secondary effluent to achieve strict water-quality standards. Compact design and rigid construction minimize the required excavation, making installation quick and easy. It is equipped with an internal current-sensing circuit that continuously monitors the performance of the UV lamp. This self-diagnostic feature protects the disinfection process from disruptions and maintains treatment quality. **800-667-9326; [www.norweco.com](http://www.norweco.com).**



### SALCOR 3G UV Wastewater Disinfection Unit

The **3G UV Wastewater Disinfection Unit** from **SALCOR** is used for residential, commercial and municipal applications, and it is UL-certified NEMA 6P flood-proof and NSF/Washington State Protocol six-month tested (with 21 upstream treatment systems). It inactivates bacteria/virus pathogens, including superbugs. Rated at 9,000-gpd gravity flow, it is meant as a reliable

building block for large water recovery/reuse systems, according to the maker. When installed in 12-unit parallel/series arrays with ABS pipe fittings, systems can disinfect over 100,000 gpd. Gravity flow equalizes without distribution boxes. Each unit has a foul-resistant Teflon lamp covering, two-year long-life lamp with efficient installation, minimal annual maintenance and energy use of less than 40 watts. **760-731-0745. ■**







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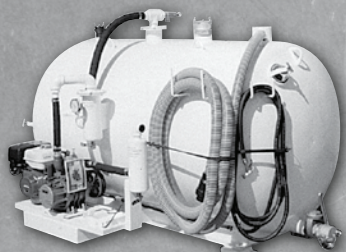
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# Advanced Treatment Units

By Craig Mandli

## CASE STUDY

### FILTER SAVES HOMEOWNER'S PROPERTY VALUE

**Problem:** A home in central Pennsylvania was listed for sale, and a septic inspection discovered a malfunctioning treatment system. The lot could not be retrofitted with an on-lot system, as nothing on the site would pass a perc test.

**Solution:** Harry Graham of Musser Engineering worked with the state Department of Environmental Protection to acquire a NPDES permit for a stream discharge disposal. The site required less than 10 TSS and less than 10 CBOD<sub>5</sub>, as well as a fecal count that was less than 200 microbial density. The engineer proposed an **Ecoflo Coco Filter EC7-500/P-PACK** unit from **Premier Tech Aqua** with an integrated UV light. No extra control panels were needed. The UV light has alarms for lamp failure and needed bulb replacement. The installer, Smartnick Farms, was familiar with the Ecoflo, with a prewired-unit and 100 feet of wire ready to go to the electric panel. He needed to dig one hole and pipe the system from the house and to the stream. The UV light has its own pump, and no extra pump tank was needed as the discharge was 5 feet higher than the tank.

**Result:** The unit with integrated UV light allowed the property to be transferred to the new owner with no problems. **800-632-6356; www.premiertechaqua.com.**



## CASE STUDY

### PASSIVE TREATMENT UNIT USED TO REPLACE FAILED SYSTEM

**Problem:** A failed sand filter overboard discharge system on a shoreline needed to be replaced in Southport, Maine.

**Solution:** With the suggestion of the installer, the site evaluator decided on placing **EnviroFin** onsite treatment system from **Presby Environmental** in the same location as the previous sand filter system, as the sand was of the quality needed for the EnviroFin system. The treatment system is 100 percent passive and treats the effluent better than NSF Std. 40 standards. The installation includes two EnviroFin units at 270 gpd.

**Result:** The treatment system allowed for the customer to have the benefits of a treatment system without the large expense, maintenance contracts or electricity. **800-473-5298; www.presbyeco.com.**



## CASE STUDY

### SYSTEM MINIMIZES MAINTENANCE FOR HOMEOWNER

**Problem:** Homes For Our Troops is an organization that builds specially adapted homes nationwide for severely injured veterans. One build project in Shelton, Washington, needed a treatment system, but the organization was looking for an option that would minimize future maintenance costs for the homeowner. The site had about 5 feet to the restrictive layer, loam soils and existing vegetation on the site.

**Solution:** Fred Kegel, P.E., designed an **Eljen GSF**, or Geotextile Sand Filter, system. The drainfield consists of three trenches with 15 A42 GSF modules in each trench. Bob Paysse of Pioneer Digging installed the system, including a pump chamber and dual compartment tank. Effluent for this system is pressurized by sleeving a pressure lateral through a 4-inch perforated pipe on top of the A42 modules before being dispersed over the GSF modules and into the ASTM C33 sand base below.

**Result:** The system was quickly installed, helping the build project to continue as planned so the veteran and his family could move into their new, accessible home. **800-444-1359; www.eljen.com.**



## CASE STUDY

### SYSTEM SOLVES WASTE TREATMENT CHALLENGES FOR RURAL TOWN

**Problem:** The town of Section, Alabama, population 770, sought a solution to treat waste produced by both its residential and commercial entities.

**Solution:** **ECOPOD** units from **Delta Treatment Systems** were installed in poured-in-place concrete tanks equipped with aluminum hatches. A 14,208-gallon flow equalization tank was installed before the treatment reactor tanks to store the wastewater and evenly dose it to the treatment system

throughout a 24-hour period. The tank includes duplex pumps to ensure flow surges don't reduce treatment system efficiency. A 19,190-gallon primary tank precedes the flow equalization tank. The effluent also passes through a UV system for disinfection of fecal coliform to concentrations below permit levels. A drip disposal system includes an effluent pump chamber, headworks, tubing, controls and all necessary valves and fittings. A concrete building was erected on site by the project contractor to house electrical controls and equipment.

**Result:** Phase 1 of the two-phase project treats 30,000 gpd domestic waste at a strength of 300 mg/L for both BOD and TSS and handles an average daily flow fluctuation range of 50 to 100 percent. **800-219-9183; www.deltatreatment.com.** ■





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## PRODUCT NEWS

*in the*  
**SPOTLIGHT**  
By Craig Mandli



### VERSATILE SUBMERSIBLE SEWAGE PUMPS OFFER BIG BENEFITS

When it comes to moving wastewater, pumping contractors want pumps designed to withstand tough environments, perform dependably and operate efficiently. With those performance criteria in mind, Goulds Water Technology, a Xylem brand, recently launched the GFK and GFV series — a range of submersible sewage pumps for residential wastewater applications. The GFK submersible pump features Xylem's K-impeller technology, designed to minimize downtime, reduce clogging and enhance efficiency when pumping wastewater.

Both the GFK and GFV series are available in multiple sizes and have an air-filled motor with built-in thermal overload protection, enabling the pump to run continuously without overheating. Other benefits that the GFK and GFV series share include cast iron components for long product life and easy maintenance, durable bearings, double mechanical seals that protect against pump damage or failure, and upgraded panel installation options for high-temperature and seal-leak detection.

"Our Goulds Water Technology GFK and GFV pumps were developed with the durability to withstand tough environments while efficiently maintaining dependable performance," says Bo Gell, Americas product manager, Wastewater, Xylem. "Both are based on proven technology used in our portfolio of robust water utility products."

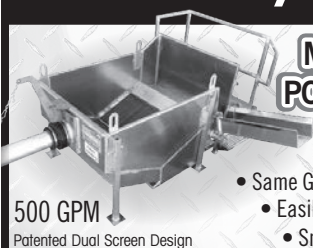
Each product line has features designed to fit a variety of residential wastewater applications. Benefits of the GFK Series include a self-cleaning impeller and grinder-handling performance that reduces clogging, according to Gell. It's also more efficient than traditional submersible sewage pumps, keeping energy costs down, he says. The GFV Series with its vortex impeller can handle the most challenging materials like stringy matter and solids up to 2 1/2 inches in size, resisting clogging, according to the company.

"Advancing wastewater pump technology is critical in today's complex wastewater industry," Gell says. "Just as important are pump design options that can fit the specific requirements of each installation. The GFK and GFV series were developed with both aspects in mind."

GFK and GFV series pumps come in 2- and 3-inch discharge sizes, covering wastewater applications requiring up to 157 feet TDH, 560 gpm and 11 hp. **866-325-4210; [www.goulds.com](http://www.goulds.com).** ■



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Contact: Lisa Nicoll

Email: cpow@cpow.net

#### RETS Inspector

**March 29-30, 2019**

San Marcos, TX

Contact: Lauren Trujillo

Email: rets@rets-llc.com

#### POWRANM Site & Soil

**April 8-9, 2019**

Albuquerque, NM

Contact: Gene Bassett

bassettec@aol.com

or Bill McKinstry

wmmckinstry@gmail.com

Instructor: Dave Gustafson

#### Soil & Site Evaluation

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Contact: Aaron Tevik

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#### Intro to Design

**May 13-14, 2019**

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#### UA Adv Design

**May 15, 2019**

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#### CPOW Site & Soil

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Contact: Lisa Nicoll

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#### CPOW Inspector

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#### Advanced Design

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## INDUSTRY NEWS

### Imperial Industries promotes Mannel to president

Kurt Mannel was announced as the new president of Imperial Industries. Formerly the vice president of Imperial Industries, he brings more than 27 years' of septic hauling experience to the role. Prior to becoming vice president, he served as the company's plant manager and ran his own business, Mannel's Septic Cleaning. He also served as the welding instructor at Northcentral Technical College.



Kurt Mannel



Chris Fancher

### Fancher to retire from Muncie Power Products

Chris Fancher, senior vice president IT and administration, has retired from Muncie Power Products. With the company since 1978, Fancher served in various roles including shipping and receiving clerk, bench assembler, accounting clerk/manager, internal auditor and inventory control, data processing manager, corporate controller, vice president and corporate controller, and senior vice president finance and administration. He had also served on the company's board since 2006. ■



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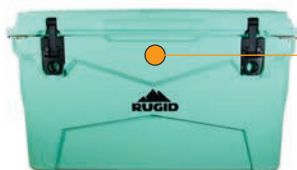


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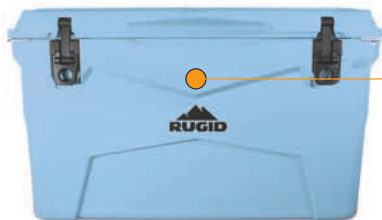


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Standard Waterproof: **\$99.99**

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40-year successful portable toilet business for sale. Includes 2011 and 2008 Ford F550 pumper trucks, 125 single units, 9 ADA units, holding tanks, handwash stations, customer list/contracts. Call 217-562-2012 or email [coleman.sara@hotmail.com](mailto:coleman.sara@hotmail.com) for further information/pictures. Price: \$125,000 (P03)

Successful septic pumping and drain cleaning business for sale located in south-central Alaska. Owners wish to retire. In business for 33 years. Large residential and commercial customer list. Excavating potential a plus. Business includes 4 pump trucks, 2 tractors, 7,000-gallon vacuum trailer, box van and smaller van for drain cleaning. Two shops on 2.66 acres with living quarters and office space as well as fenced lot with highway frontage for holding tanks. If you love hunting, fishing and desire the Alaskan Last Frontier dream, please call 907-715-6730. (P03)

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2001 Keith Huber International pump truck. 2 Decons, 28' Tonto, 18' Royal, 2001 ASCI, 16' Presidential, 26' Presidential, portable toilet hauler trailers. 315-437-1291, NY. (PBM)

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**301-639-5212, MD** P03



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**Call Brix 815-946-2813, IL** P03



**2007 Freightliner,** 33k GVW, Mercedes diesel, 249k miles, Allison auto. 2,000-gallon tank (1,500 waste/500 fresh), dual side service. Moro M-10 pump, DC-10 washdown, 2-unit toilet carrier. Located in NM. .... \$37,500 OBO

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**Call Josh or Mike**  
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P03



**2006 Freightliner M2** service truck. MB 7.2-litre, Allison auto, stainless steel 1,500-gallon, 2-compartment service truck. Masport HXL4, air brakes, 321,000 miles. \$36,995. Multiple pictures and additional information at [www.portabowlrestroom.blogspot.com](http://www.portabowlrestroom.blogspot.com).

**Cory@Portabowlinc.com**  
**215-416-3005, PA**

P03



**2004 International** DT466, 266k miles. 1,700 gallons total, 1,300 waste, 400 water. Battioni 8000 pump, Flo-Jet water pump 75psi @ 6gpm, (2) 50' reels w/ hose, (2) 30" Tiger Tail w/wands. Dual work station, 2-jon rack, LED work lights. \$45,000. Ameripump Mfg., Tulsa, OK

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P03



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P03

2007 Isuzu NPR, 8' flat bed with Progress tank (400/200 split). 170,000 miles. All services records included from date of purchase. \$16,000. Ricky@portapros.com; Office 208-467-0089; Cell 208-949-0117 (P06)

2014 International pump truck, Flow-Mark aluminum 1,850-gallon tank, 62,000 miles, \$85,000; 2007 International 4300 1,350-gallon, 265,000 miles, \$37,500. 256-757-9900 or [www.pbsos.com](http://www.pbsos.com) (PBM)

1992 Isuzu Tiltmaster, diesel, 258,000 miles. 800 gallons. Got it with my business when I bought it. Runs great. Just do not need it at this point. I do not know what this is worth so I will take offers. 812-787-1958 (P03)



**2017 Hino 268**, just under CDL, 11,200 miles. Dual side service, 1,500 waste/500 fresh aluminum tank, Fruitland waste pump. Moro 12-volt washdown pump, Hannay hose reel, work lights. Tool box on both sides, back rack attached to truck to haul 2 units. Air brakes/driver seat, Allison transmission, automatic. Bluetooth/CD/MP3. Built by Robinson Tanks, all service records available. .... \$85,999 OBO

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P03



**2005 Freightliner Model M2106** flatbed. Hauls 12 units with side load gate. Under CDL, good condition ..... \$25,000

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P03

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## RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted jetters. All available for daily, weekly, monthly, and yearly rentals. **VSI Rentals, LLC, (888) VAC-UNIT (822-8648) www.vsi rentalsllc.com** (PBM)

2016 Acro Vacuum Trailer: Stainless steel 6,000 gallon, DOT certified double conical with air-ride suspension. Aluminum wheels all positions, full hose trays, OSHA walkways and railings. Vacuum pump option either hydraulic or self-contained. KLM Rentals, Inc. 617-909-9044 (PBM)

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**2006 Sreco HS516 TM** rodder unit mounted on a nice truck bed with tool boxes for attachments. This was a city-owned unit that has not been used very much and is in very good condition. New hose casing and numerous bits of different sizes. Lots of additional rods. All hydraulic-driven and in very good working condition. Call for more information ..... \$3,800

**610-637-2145, PA** P03

## ROLL-OFF TRAILERS

2001 ESP Roll-off trailer: Two (2) container roll-off trailer good brakes, tires, frame. etc. KLM Companies 617-909-9044 (PBM)

## SEPTIC TRUCKS



**Texla Services Vacuum Truck Bodies** – Turnkey package mounted on your chassis includes: painted body, lighting, valves, PTO and pump. 3,600-gallon - \$25,000; 2,500-gallon - \$22,000; 1,500-gallon - \$18,500. Many custom options are available. Bodies out of paint: 2,500-gallon - \$13,500. Self-contained skids available.

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**Caleb 281-914-1192** P03



**1998 Mack CH613**, 330-350 horsepower, 10-speed, tandem axle. Includes Shaddix 16' set bed system, used for septic tank installation with 12,000 lb. winch. Only asking \$28,500. Please call for more information if interested.

**251-747-1956, AL** P03



**2003 Freightliner**, 2012 steel 2,500-gallon vacuum tank, Jurup pump. Allison transmission, 80-gallon freshwater tank, two tool boxes. Hose trays relined, new drums and brakes on back. 35,000 GVW. .... \$22,000

**607-725-3963, NY** P03  
**contact@tiogasanitary.com**



**2008 Peterbilt 340** with a brand-new aluminum tank and brand-new pump. 300 horsepower. Chrome all over! 174k miles on Cummins ISC. Central Arkansas. Shipping and financing available.

**Caleb 281-914-1192** P03



**1995 Mack:** This truck has a 4,000-gallon aluminum tank and jetter with 300-gallon freshwater tank. It needs a transmission and clutch. .... \$19,000

**561-302-7195, FL** P03



**2005 International DT400** 7400, 4,000-gallon waste tank which tilts up and opens from the rear. 300-gallon freshwater tank with jetter. Tires are good. Engine needs work. 385,000 miles. .... Asking \$29,500

**Andrew 561-302-7195, FL** P05



**2000 Sterling**, 3126 Cat engine, 3,000-gallon steel tank, NVE 367 vacuum pump. All new tires, 133,000 original miles, excellent condition. \$43,500

**Call 906-290-0700, MI** P04



**1997 Kenworth T600**, 3,300-gallon tip tank, Masport HXL400W pump. 815,137 miles on truck. RedTop Cummins. .... \$25,000

**Randy 256-477-0378, AL** P03  
**randy@mazamaservices.com**



**2007 Freightliner M2-106:** Clean, no rust, pre-emission. 94k miles, 4,600 engine hours. 6-speed manual, 275hp Cat C7. Brand-new brakes and drums. NEW virgin 11R22.5 tires on aluminum wheels. Completely serviced all fluids and filters. NEW 2,500-gallon vacuum body with 400cfm pump. All stainless steel couplings, 150' suction hose, LED lights. Best of everything. \$62,000 delivered to your door.

**Call/text 734-777-0390, MI** P03



**2019 Peterbilt 348:** PX9, 350hp, Allison 6-speed automatic. Air-ride, 20k fronts; 40k rears. 4,200/200 aluminum tank. Jurup RV360 pump. 4,000psi 4gpm jetter system. Aluminum wheels. .... \$169,900

**318-797-2702 or**  
**318-780-173, LA** P03



**2017 Kenworth T270**, PX-7 diesel, 6-speed transmission, 149k miles. A/C, cruise. New: 2,500-gallon tank, stainless hose trays, Fruitland 500 vac pump, aluminum wheels, tires and paint. \$72,000

**Call 740-259-5555, OH** P03



**2000 Peterbilt 330**, 3126 Cat engine, 6-speed transmission. 4-year-old LMT 2,500-gallon vacuum tank, Fruitland 500 vacuum pump. Excellent starter or backup truck. .... \$25,000

**Call JR @ 720-253-8014, CO** PBM



**2014 Kenworth T270**, Paccar motor, automatic transmission, diesel, under CDL. A/C, cruise. New 2,100-gallon tank, aluminum on both sides, stainless hose trays, aluminum wheels, Jurup PN84 vac pump and tires are all new. 138k miles. Extremely clean truck. .... \$72,000

**Call 740-259-5555, OH** P03



## SEPTIC TRUCKS



**1995 Freightliner FL70** septic truck with 89,965 miles, 2,500-gallon tank, 6-speed manual with Cummins 5.9 diesel. 2015 Masport pump .. \$33,750 OBO

**Jeff 217-224-1932, IL** P04  
midwestservicecenter@gmail.com



**1994 Volvo WG64** with Presvac 3,300-gallon, two-compartment, (2,300/1,000). Cat 3406, 400hp with Fruitland 1200 vacuum pump. .... \$27,500

**KLM Companies**  
**617-909-9044** PBM



**2010 International 8600**, 10-speed Eaton Fuller, 229,000 miles. New 2,500-gallon carbon-steel tank, new Jurop pump 360cfm. New tires all around. .... \$49,900

**Call Alan 786-908-5436** P03



**2007 Sterling LT9513**, 450hp, 10-speed, red, PW, AC, air ride. 18k front axle, 44k rear axle. NVE 367 vacuum pump, 3,600 gallons. Aluminum tool box, aluminum front wheels, stainless rear wheel covers. 270,000 miles. Heavy-duty truck, good condition. Can email pictures. .... \$67,500

**989-379-3054, MI** P03



**2007 International 4300**, Cummins, new 2,000-gallon carbon-steel tank. New Jurop pump 307cfm. .... \$39,900

**Call Alan 786-908-5436** P03



**2017 Peterbilt 567**. Owner's personal truck. 90k miles, 455 Paccar motor, NVE 866 pump, 10-speed transmission. Vantage 5,000-gallon aluminum tank. 30k hitch, all aluminum wheels. ... \$189,900

**706-252-4743, GA** P03  
Cartersenvironmental@gmail.com



**2013 International** vacuum truck with 2,500-gallon tank. Brand-new tank and accessories. New red and black paint. 330hp MaxxForce engine with retarder, 10-speed transmission. Tires 50%, cold a/c, radio, power windows and steering. Air brake. GVW 33,000. \$55,000. WE DELIVER ANYWHERE. Call Jerry for more details.

**239-656-2774** P03



**2002 Sterling**, 3126 Cat, 8LL, 200,100 miles. Imperial 4,000-gallon tank used two seasons, Masport 400 liquid-cooled pump. New tires and brakes, good hoses. Truck is ready to go to work. \$52,500

**Dave 612-221-6355, MN** P03



**1996 GMC C7H TopKick**: 3116 Cat-erpillar, 5-speed, 1,500-gallon vacuum tank. 307cfm Transway pump, hoses, ready to work. Solid truck. Financing available. .... \$16,500 OBO

**315-783-0803, NY** P03



**2007 Freightliner M2** w/Cat C-7, Allison 6-speed automatic. 2,300-gallon tank (2015), Jurop RV 360cfm pump, 190,000 miles. 260' of hose, CrustBuster and spare Jurop RV 360 also included. This unit is back on the market due to buyer unable to get financing. This truck is ready to go to work! .... \$44,500 OBO

**314-608-2457, MO**  
aesepptic@yahoo.com P03



**2012 International ProStar**, 500hp. New 3,600-gallon tank painted red/black. New Jurop R260 pump. Cold a/c. \$45,000

**Jerry Eagle 239-656-2774** P03

2003 Peterbilt septic tanker truck. Diesel. Holds 4,000 gallons. 239,261 miles. In good condition, well maintained. Good tires. \$79,900 OBO. 401-737-0560 (P03)

1997 Ford LN9000 with Presvac 2,300-gallon tank. Tank in great shape. Cummins with Fuller transmission. Just inspected, runs excellent. \$25,500. KLM Companies 617-909-9044 (PBM)

In search of below-CDL limit septic tank pump-out truck in good condition located in Florida. Prefer 2,000-gallon tank or close. Prefer automatic transmission. No Maxx-Force engine trucks. 850-902-9044 (P03)

2009 Freightliner M2, 183k miles on Cummins. Under CDL, new tank, pump and PTO. Photos on request. Arkansas. Call 281-914-1192. (P03)



**2008 Freightliner M2**, 263,000 miles, 425hp, 10-speed. New tires all around, polished aluminum rims, aluminum hose tray. 40K rear, 20K front. New 4,000-gallon carbon-steel tank, new water-cooled Masport Hydra pump. Available now. .... \$70,000

**Call Alan 786-908-5436** P03



**2009 Hino 268**, 182k miles, manual, non-CDL. New 1,870-gallon tank, new PN84 pump, new PTO. \$46,750. Central Arkansas.

**Caleb 281-914-1192** P03



**2009 Freightliner M2**. New 2,100-gallon tank and pump. 311,695 miles. Call Jerry for more information:

**239-656-2774** P03

**2012 International 4300**, 33,000 GVW, DT466, 245hp, Ultrashift automatic. NEW 2,500-gallon steel or aluminum vac tank - your choice. New Fruitland vac pump. Call JR @ 720-253-8014, CO. (PBM)

1995 Ford L8000 cab & chassis with a 3,300 U.S. gallon Keith Huber Dominator, carbon steel. Full-opening rear door, dump-type unit with a Becker 440 vacuum pump. (Stock# 2507C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

1999 Sterling L9000 tri-axle cab & chassis with a 4,000 U.S. gallon Keith Huber Dominator, two compartment (500 water - 3,500 waste) C/S. Full-opening rear door, dump-type unit with a Becker 440 vacuum pump and jetting system. (Stock# 3408C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

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New 4,000 U.S. gallon, aluminum, vacuum-pressure tank mounted on a 2019 Peterbilt 348 cab & chassis with NVE Challenger 866 fan-cooled vacuum pump. (Stock# 13789) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

New 5,000 U.S. gallon, aluminum vacuum-pressure tank mounted on a 2019 Volvo VHD tri-axle cab & chassis with an NVE 4310 PD blower package. (Stock# 13796) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

1997 Mack RD688S tri-axle cab & chassis with a 4,500-gallon aluminum vacuum tank and Wittig RFL100 pump package – coming in September. (Stock# 3130V) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

2006 Western Star 4900 tri-axle cab & chassis with a 5,000-gallon carbon-steel vacuum tank & Masport HX-L20WV pump package. (Stock# 7347V) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

2004 Freightliner M2-106 with a Presvac 1,500-gallon carbon-steel vacuum tank and Masport HXL400WV pump. (Stock# 4468C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

2010 Ford F750 with a Presvac 2,300-gallon c/s tank and Masport pump. (Stock# 0764C) **www.VacuumSalesInc.com (888) VAC-UNIT (822-8648)** (PBM)

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or **sales@genevaequipment.com**  
**www.genevaequipment.com** P02



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or **Mike @ 303-478-4796** PBM

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**Imperial Vacuum Trailers:** In stock, 6,000- and 6,300-gallon aluminum single-compartment Imperial vacuum trailers.

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**800-558-2945 Ext. 426** PBM

## TRUCKS – BOOM



**1989 Peterbilt 379**, double frame, 3406 Cat engine, 18-speed transmission. Del Zotto Hydra Brute rail package. \$30,000. Martin Septic Service Inc, North Port, FL

**cguffey@martinseptic.com** P04

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## TRUCKS – MISC.



Brand-new **2019 Kenworth T270**, Full manufacturer warranty. New: 2,100-gallon tank, Jurop PN-84 vacuum pump, and stainless hose trays. A/C, cruise, automatic transmission. \$97,000. Financing and delivery options available. Equipment installed by Hull's Truck Bodies. Other trucks available at Hull's Truck Bodies 740-820-5338; <http://www.facebook.com/hullstruckbodies>

**Call 740-259-5555, OH** P03



**2001 International 4900** w/automatic transmission. This is a 4-compartment tank truck with a gear pump. 4,000-gallon capacity. Located in Charlotte, NC.

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**Contact 704-361-5837** P03

2006 UD 3300 Cab Over cab and chassis (no tank) with 230cfm Masport pump. 247,000 miles. Has everything you need, just add a tank! 230hp, 6-speed manual, spring suspension. Extremely fuel efficient. Great turning radius. GVW 33,000 lbs. New transmission. Great mechanical condition. Interior worn and stained. Wheel well is dented on passenger side. Few scratches on front of truck. Cracked windshield. \$13,800. Call or text Dylan 919-817-6142 (P03)

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**Call Rick 330-716-2004, OH** P03

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