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Contact Jim with your comments, questions and opinions at editor@pumper.com.

The Right Way and the Wrong Way

Stories in this month's issue include a great example of public sector/private business cooperation and uncovering an unfortunate septic tank maintenance solution By Jim Kneiszel, Editor

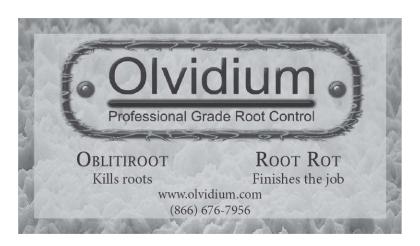
he septage disposal station in Livingston County, Mich., is an example of what can be accomplished when public officials take advantage of the expertise of wastewater haulers on a major construction project. In our Pumper Interview story this month (*Dumping Done Right* by **Scottie Dayton**), you'll read about how this receiving station has become a model for the pumping industry.

Because the county's five-year maintenance cycle for septic systems was estimated to generate 12 million gallons of septage per year, officials knew they had to develop a facility design that would be convenient for pumpers to use. First, they decided to locate the building near a major highway for easy access and to ensure pumpers wouldn't face springtime weight restrictions. Then local drain commissioner **Brian Jonckheere** called on area haulers for input on the design, and their ideas saved the county a lot of money.

"One hauler noticed that all the equipment was on the same elevation as the truck bays, forcing him to pressurize the tank to off-load instead of using gravity," Jonckheere explained about a review of the preliminary plans. "Without his comment, retrofitting the station for gravity feed would have cost \$500,000 to \$750,000. We lowered the screening room floor and the hose connection in each bay. We also put a 6-inch depression in the bay floors that tips the trucks backward to empty the tanks fully."

The station incorporates convenience technologies, like swipe cards to access the building and generate complete recordkeeping, and creature comforts for the hardworking drivers as they wait for loads to empty.

"Besides a clean bathroom, a hospitality counter has free coffee, tea, and chilled or frozen Gatorade in summer," Jonckheere says of some of the pumper perks. "Our safety equipment includes eye wash, safety shower, sinks and carbon monoxide monitors." Supportive pumpers were even awarded Christmas bonus gallonage in 2012.



When pumpers are given a seat at the table with government decision-makers, good things can happen, and Livingston County is proof of that.

When pumpers are given a seat at the table with government decisionmakers, good things can happen, and Livingston County is proof of that.

NOT MY FIRST CHOICE FOR A TANK LID

I've always been a big backyard griller, and my grill of choice is the classic Weber Kettle. From bratwurst to a 15-pound turkey, there's nothing you can't turn into a delicious charcoal-roasted delicacy using the Weber. And its unmistakable rounded design – made to cook with convection – was perfected in the 1950s and hasn't changed since.

I never imagined the cover of a Weber grill as a septic tank lid ... until a *Pumper* reader posted a photo of a tank he unearthed recently. There it was, sure enough. The top half of a Weber grill covering the opening of a 500-gallon steel septic tank. The pumper found the oddity during an inspection done for a real estate transaction.

You can see the makeshift lid and read about the discovery in our Overheard Online column this month. The sight made me chuckle, and also got me to wondering, what's the strangest thing you've dug up on the job? Drop me a line and let me know at editor@pumper.com.

Perhaps the funniest part of the story is that it appears the pumper put the Weber lid right back where he found it and the home sale went through. How many health departments would allow that situation to continue and how many mortgage loans would go through if the lender knew a Weber grill was part of the septic system?

HOME FROM THE PUMPER & CLEANER EXPO

For me, the first few weeks of March is the time to come down from the high of the Pumper & Cleaner Environmental Expo International and look forward to how pumpers are preparing for the busy season to come. I also take time to reflect on what I learned at the Expo, especially from talking to pumpers on the exhibit floor and during the roundtable discussions.

If you have any feedback about what you learned at the Expo, I'd enjoy hearing it. What's the best piece of advice you took away from Education Day that will help your business this year? What tool or technology on display has the most potential to help you provide better or more efficient customer service? Drop me a line to share your Expo observations.



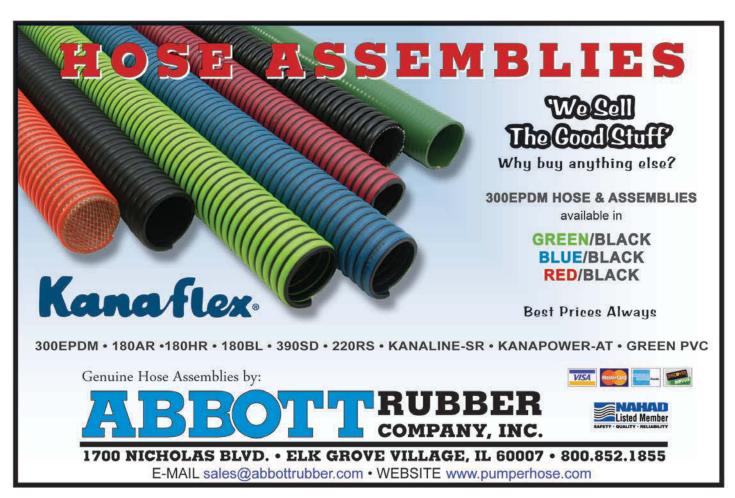
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your guide to regulations

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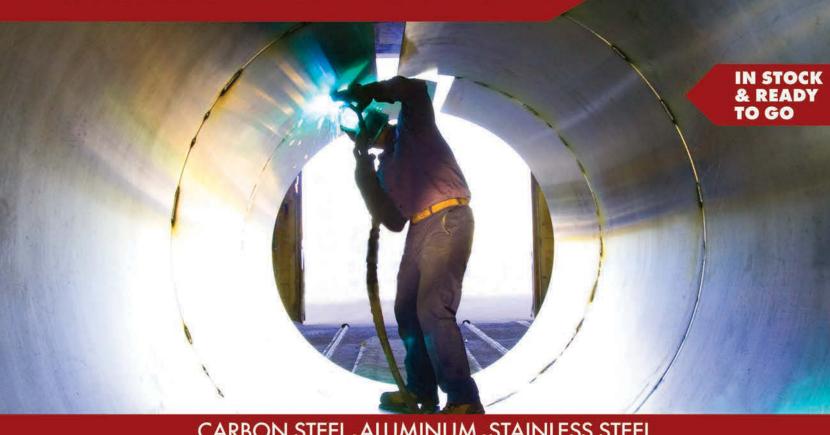


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PIGHEORIC

Farming and pumping are two great businesses that go well together, say Michigan's Mark and Shannon Hinterman By Dee Goerge

xcept for a couple of vacuum trucks parked by the barn and Miller-Bartz Septic decals on a couple of pickups, Mark and Shannon Hinterman appear to be typical farmers in Durand, Mich.

Like many jack-of-all-trades farmers, the Hintermans run a sideline business – and theirs is a septic service. And a pit beneath the former dairy barn makes it a natural combination. The pit that once held manure from 120 dairy cows now stores up to 200,000 gallons of septage until it can be spread on the Hintermans' property.

That's just the beginning. The Hintermans own 1,200 acres including two properties – each with barns that also have 200,000-gallon manure pits – designed by Michigan State University. Though the Hintermans only need about half the 600,000-gallon capacity, the storage areas are key to their septic business and allow room to grow if they choose.

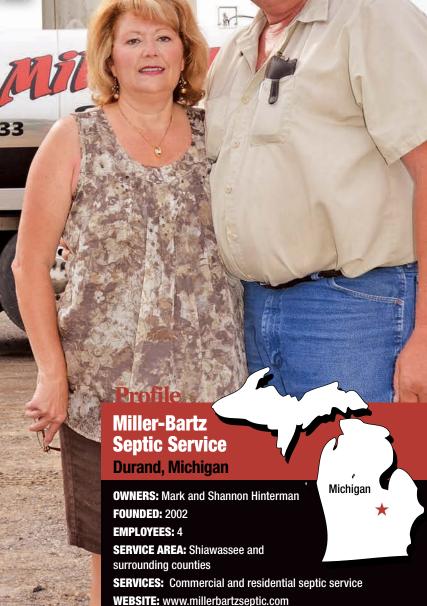
RECOGNIZING OPPORTUNITY

A variety of experiences led to the pumping business, beginning with Mark knowing he wanted to farm at age 5. "Grandpa had farms, and we would do hay. I was with him all summer, and I knew I was happy. I was Grandpa's shadow," he recalls. In high school during the early '70s, he delivered tractors and equipment for the local John Deere dealership. But like many young men in Michigan, at 19 he got a job at General Motors.

Thirty years later, in 2005, plant closings appeared imminent, and Mark retired. But at 49 he had several irons in the fire. Many years before he had purchased his first 10-acre "farm." Soon he was baling 550 acres, including neighbors' land, and by 1991, he and Shannon bought their current farm with 120 dairy cows. In less than two years, they sold the dairy cows and focused on crop farming — along with their full-time jobs.

(continued)

Michigan farmers Mark and Shannon Hinterman have found a convenient synergy between their farming and septic service operations. The owners of Miller-Bartz Septic Service are shown with one of their service trucks, a refurbished milk hauler with a tank from Imperial Industries and vacuum unit from Masport Inc., parked in front of silos on their farm. (Photos by Dee Goerge)



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Mark recognized pumping as an opportunity in 2002, when he read a newspaper article about a new mandate in his county (Shiawassee). Whenever homes were sold, owners would be required to have the septic tanks pumped and the drainfields and wells inspected.

"I figured with the amount of houses being sold in the county, we've got to get enough income to make this thing work," Mark says. "I thought it was a workable business that would go hand-in-hand with my farming operation."

Instead of starting a new company, the Hintermans purchased Bartz Septic from its retiring owner. Two years later another pumper, Al Miller, contacted them about buying his business. Because both names were respected and familiar, the Hintermans combined them for their business name.

In one week

had three people call us

back - and no brag, just

fact - and tell us how nice

our employee was. That's

- Mark Hinterman

what I want

to hear.

recently, we

PERFECT FIT FOR FARM

Mark used the manure pit right away, which was fortunate when the state of Michigan Department of Environmental Quality mandated new septage regulations for land spreading in 2004. Land certified for spreading must pass a perk test, be 800 feet from wells, slopes, streams and neighbors, and meet other criteria. Septage must be spread after harvest and before Dec. 15, or after April 1 – which is why the pits are important. The waste is screened to remove plastics and turned under within six hours of spreading.

"We have 40 acres approved by the DEQ and our county health department.

We have to pull soil samples every year and send it to the DEQ to let them know we are not over-applying," Mark explains.

By rotating corn and soybeans (for animal feed), the crops draw down nutrients, allowing spreading on the same acres for a decade. Septage doesn't have the same potent odor or high level of nutrients as cattle manure, he says, noting the crops don't do as well as his manure-fertilized crops.

It's a system that works well for land spreading, Mark says, but one that is set to end in 2025, unless mandates change.

TAKING CHARGE

The Hintermans diligently follow regulations and are members of the Michigan Septic Tank Association. They attend classes to maintain licenses to run the pumping business.

They have a full-time farm employee and two part-time employees for the pumping business. Mark works in both operations and personally handles the land application.

"It's a bit of a challenge to back up the 8,500-gallon tank with an articulating tractor," Mark says. "Spreading is a 12-hour job for each pit. I pump and land-apply it in one day."

The same pump that once moved cattle manure conveys the septage to the tank. He usually empties the pits after fall harvest, and again in the spring before April 1. It takes him about two days each time to spread and work the septage into the approved 40 acres.

Shannon retired after a 25-year career as a nurse to manage the farm and pumping businesses.

"When we bought the pumping business, we had to decide if I should do it or if we should hire someone. I'm more comfortable handling my own money. I like being involved," Shannon says. She outgrew a spare bedroom office and now works out of the former attached garage

Shannon Hinterman manages the couple's farming and pumping operations. She outgrew a bedroom in their farmhouse, and now works out of a garage converted into an office.

(continued)







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converted into a roomy office. She uses QuickBooks for accounting and has a smartphone. With call forwarding, she can answer the phone wherever she is.

"You never get away from it, but the advantage is I've got the flexibility. I can work until midnight if I have something to do during the day," she says.

Mark prepares final scheduling and Shannon usually takes calls from customers, answers questions and makes arrangements for pumping. She has been along on pumping runs with him and understands the business. "It makes a difference who answers the phone, and I'm the first to say she does a better job than I would," he says.

DOWN-HOME FRIENDLY

Courtesy and friendliness don't end with Shannon.

"My theory is – and I preach it to my employees – always be customer-friendly and get to know the customers a little bit," Mark says. Courtesy starts with not bothering neighbors by driving east on the gravel road past them and raising dust. Even when it creates a longer route, Mark and his crew drive a halfmile to the west to a paved road with no neighbors when making runs.

"We try to do same-day service for everybody if at all possible. If calls come after hours, we schedule it the next day," Mark says. Promptness is a priority. The GPS is really nice. If it doesn't get us to the doorstep, it gets us pretty darn close – and it also gives our arrival time. So if we have to call ahead, the arrival time is to the minute. People love that. A \$100 Garmin will pay for itself in a day or two.

- Mark Hinterman

"We have GPS [in the trucks] and also carry county atlases. The GPS is really nice. If it doesn't get us to the doorstep, it gets us pretty darn close – and it also gives our arrival time. So if we have to call ahead, the arrival time is to the minute. People love that. A \$100 Garmin will pay for itself in a day or two."

Besides timeliness, Mark stresses thoroughness. That includes raking or whatever it takes to tidy the landscape – and making sure the job is done right.

Preserve Land Application

Mark and Shannon Hinterman are working with members of the Michigan Septic Tank Association to reverse the ban on land application set to begin in 2025

"We are trying to change that by working with our politicians and legislators," Mark says. "We're hoping to come to an understanding to stretch this farther, as long as we do things right. We want to keep our cost margins down."

He has concerns about the requirement to take all septage to a treatment plant.

"For one thing, I'll have to charge double," he says. "For a lot of people on fixed incomes that would take their Social Security check for a month, so they won't have [the septic tank] pumped."

His other concern is that many small municipal treatment plants don't have the capacity to handle the additional septage. He would have to haul 35 miles to Flint. In addition, many of the treatment plants are located near rivers, and when monsoon-like rains hit, he's heard horror stories of how water in the plants overflow into the rivers.

"As long as everything is being done right with the land application, and we're soil testing, I think it's a good way to dispose of it," he says.



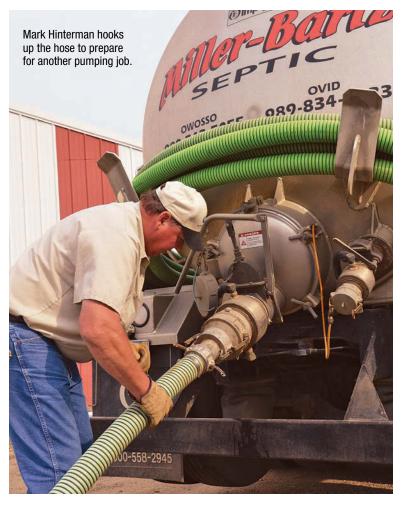


After opening the tank, the technician stirs the tank manually with a rod and feels the tank walls to make sure it isn't partitioned. Mark has informed more than one customer they have a tank with multiple chambers after other pumpers have only taken care of one for years.

Mark Hinterman pumps septage from a 200,000-gallon manure pit into an 8,500-gallon farm spreader tank pulled by a John Deere tractor to land-apply the waste over an approved 40-acre site.

"In one week recently, we had three people call us back – and no brag, just fact – and tell us how nice our employee was," Mark says. "That's what I want to hear."

The Hintermans make it easy for new customers to find them with signs on their pickup trucks, phone book ads, signs at the county fair, advertising that supports school programs and a website.



THE FLEET

The trucks that came with the businesses have been upgraded or replaced by rigs with larger capacity to pump multiple tanks before returning to off-load at the farm.

A 1999 Freightliner had a 2,200-gallon tank, until Mark had the chassis extended with an additional axle. Now it carries a 3,000-gallon waste/100-gallon freshwater steel Imperial Industries tank. A 2007 International with a quad axle was a milk-hauling truck with just 13,000 miles on the odometer. Mark had the tank replaced with a 4,800-gallon waste/100-gallon freshwater aluminum Imperial tank. Both have Masport 400 pumps.

For land application, Mark pulls an 8,500-gallon steel tank (a used water tank mounted on a flatbed semi trailer with dolly wheels) with a 2013 4WD 9360 John Deere tractor and works the septage in with a 32-foot Case IH disc or a 50-foot John Deere field cultivator. A John Deere pressure washer keeps the trucks and equipment clean.

PUMPING COMES FIRST

With land they own and rent, Mark farms about 3,000 acres of corn, soybeans, wheat and hay. The part-time employees for the pumping business work more hours during planting and harvest time. But when necessary, Mark leaves fieldwork to respond to a call.

"Septic has to come first. Our customers have to be taken care of, and we'll fill in later with the farm," he explains.

One group of clients that gets immediate attention are excavating contractors. Quick response has earned the business of all area excavators, and Mark keeps them busy by recommending them to his customers who need repair and installation work. His policy is to suggest the best excavating businesses closest to his customer, so he spreads the work around and keeps all his excavating clients happy.

The Hintermans' location in the center of the county, the manure pits, land application and the couple's work ethic have helped the business grow. As Mark predicted, the mandate requiring pumping and inspections on homes sold has created steady work, accounting for about 25 percent of the pumping income.

At 57, and already retired from one career, Mark loves the challenge of farming and pumping.

"It's part of his genetic makeup," Shannon says. "If he isn't being challenged, pushed and stressed, he isn't happy. He has these goals and come hell or high water, he's going to achieve them."

Mark's not sure what the future holds, whether anyone in the family will want to take over farming and/or pumping. Or if Michigan's 2025 ban on land application will remain in place. He hopes he never has to choose between the businesses.

"As long as my health is good and I enjoy it, I want to keep doing both. I question what I like to do more, pumping or farming, but I couldn't decide. I enjoy meeting people while pumping and I like farming," he says. ■

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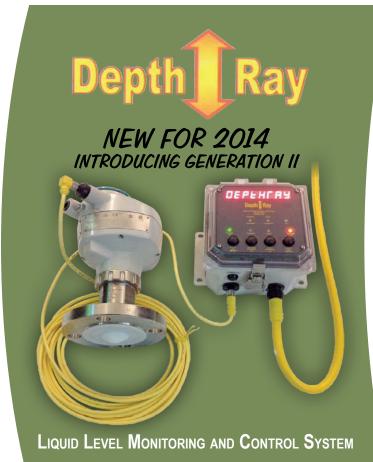


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Timothy Bednarz is the author of *Great! What Makes Leaders Great: What They Did, How They Did It and What You Can Learn From It.* Contact him at timothy.bednarz@majorium.com or 715/342-1018.

Listen and Learn

Encourage employees to speak up when they have questions and concerns, and then build a positive relationship to help the company By Timothy Bednarz

re you "all ears" at the office? If you're a manager, you should be. A good leader fosters open communication, encouraging employees to freely ask questions and discuss any concerns.

True leadership requires open and regular interaction between managers and employees. Good leaders know they cannot lead from behind a desk. To get a sense of what is actually happening in their organization, they must be actively involved.

This doesn't mean leaders directly help employees perform their jobs. By simply maintaining an active awareness of what is going on in their company, leaders can anticipate problems and opportunities and respond accordingly. Plus, when leaders communicate and maintain a presence with their employees, they establish great rapport, which deepens employee trust and loyalty and broadens organizational cohesiveness.

Leaders can open up communication with their employees by practicing these techniques:

ENCOURAGE QUESTIONS

Employees have various levels of confidence and self-esteem, so leaders must encourage everyone to regularly ask questions. This will make employees more comfortable about speaking up. It also gives them the confidence to approach their boss without hesitation when the need arises.

When asked a question, leaders must be open and receptive, no matter how trivial the subject. Those who simply brush off the employee convey that questions are not welcome or there's no time to discuss them. These managers undermine the process of open communication.

LOOK FOR OPPORTUNITIES TO ASK QUESTIONS

Leaders must not passively wait for employees to come to them with questions. The nature of leadership demands being out among employees, asking questions and soliciting input. Leaders can communicate their interests to each employee while keeping tabs on the activities and direction of the organization. Thus, they will be able to anticipate and handle an issue before it explodes into a major problem.

When leaders actively solicit questions and answers, they communicate care and concern for their employees and the entire organization.

ASK 'PERSONALLY'

It is important for leaders to ask questions in person. Email doesn't communicate the tone and nonverbal cues that people often need to fully understand a question. And face-to-face questions give leaders the opportunity to clearly explain their intentions and get a more comprehensive answer.

When leaders actively solicit questions and answers, they communicate care and concern for their employees and the entire organization.

While email may be efficient, leaders should understand that not all employees are good writers; therefore, some may not be able to communicate adequately in this medium. Employees who are uncomfortable with email might not even attempt to reply unless forced to, in which case, responses may be short and/or incomplete.

RESPECT THE QUESTIONER

In the daily workplace routine, it is not uncommon for a leader to hear a range of questions, from trivial to extremely important. Leaders must treat every question and questioner with respect. Rather than embarrass or alienate the employee, good leaders validate the question and thank the employee for bringing it to their attention.

LISTEN ACTIVELY

When approached with a question, leaders need to give the employee their undivided attention; however, the workplace environment may not always make this practical. So if their attention is needed elsewhere, rather than appearing to dismiss the employee, leaders should explain that the timing simply isn't right. They should assure the employee that they would like to talk later, at a specific time convenient for both.

The time selected must be sufficient for a full discussion, without any urgency to hurry the process along. Once the appointment is set, leaders should make a point to keep it. When discussing the question, leaders should paraphrase parts or all of it back to the employee to help clarify and understand the concerns being raised.

BE COOPERATIVE

In most workplace environments, leaders deal with daily problems and issues that produce varying degrees of stress. Under such circumstances, it is easy for any individual to appear defensive or adversarial when asked a question, especially an unexpected one.

Effective leaders, however, maintain a consistent attitude and posture that fosters a cooperative spirit within their team or company. They keep a friendly and open demeanor with their employees by paying attention to their own moods, attitudes, body language and tone of voice.



TAKE RESPONSIBILITY BUT DON'T SOLVE EVERY PROBLEM

All people in any organization have limits and responsibilities. When approached with questions, a leader should not respond by doing the employee's work for him or her. But there are times when the leader is responsible for developing a solution. The key is to understand the appropriate response for the particular question.

Leaders need to set firm and fair limits on what they are willing and able to do so employees don't place unreasonable demands on their time and energy. At the same time, it is unrealistic for leaders to expect their employees to solve every problem without guidance. Generally, the appropriate course of action is somewhere in the middle, where the employee and the leader brainstorm to arrive at an acceptable solution.

FOLLOW UP

Open communication demands leaders follow up on their responses to employee questions by making sure the solution is understood, acceptable and implemented. Obviously, the degree of follow-up should be proportionate to the question's impact and importance. Small problems probably only need a simple follow-up question to make sure things are going all right, while bigger problems could require a series of subsequent meetings.

Follow-up keeps communication with employees open because it often triggers additional questions, input and feedback. In this way, the communication process becomes a continuous, effective loop. \blacksquare



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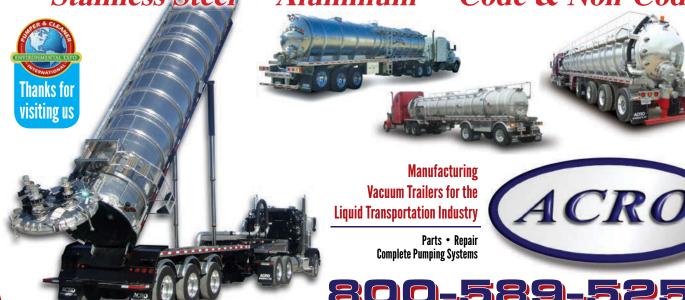
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Getting Started

Wastewater trade association takes off in Arkansas to represent pumpers and installers on new regulations By Doug Day

he Arkansas Onsite Wastewater Association has only been around since April 2010. While it could use more resources to recruit members, it takes members to get those resources. It would help if they had more power in the legislature, but that requires numbers, as well.

ARKOWA was formed by Don Daley (president) and his wife Peggy (secretary/treasurer). We talked to Don about the group's founding and its future:

What prompted you to start the organization?

Daley: My wife and I are both system designers and we were working with the owners of some highly valuable lake property. We found out we had to go through a lot of hassles. They got turned down for a septic system and we couldn't find any way to get a system approved. We ran into regulations we'd never heard of and nobody could tell us how they became law. We talked to our state representative, who is now a state senator, about how we get into the loop when regulations are being made. He told us if we wanted a say, we needed a professional association and he would help us get started and get us a seat at the table.



Don Daley can be reached at 501/617-1046 or don.daley@ sitewisearkansas.com.

There were a few people interested and nobody had the time, so we spent about two years and our own money incorporating ARKOWA and have been trying to get the membership up ever since.

How many members do you have?

Daley: We have about 60 members out of about 900 people licensed to do septic work. Who knows how many of them are really active? We're still in our infancy, but we do have enough people that the legislature will talk to us. It's better than it used to be.

If somebody wants something and there's nobody there to oppose, it goes right through a committee and to the legislature and nobody has questioned it. If you have an association, you can go into committee meetings and sign up for or against a bill. There were a lot of those types of special interest things that got through. The legislature now knows there is somebody who is interested and it gives them a cause to ask a few more questions.

But it is a numbers game, and that's what we tell potential members. The more members, the more influence you have. Most of the legislators can't relate to onsite wastewater because most of them are on city sewer. It's completely foreign to them.

What types of things are you working on?

Daley: There are officials in the Arkansas Department of Health who would like to see the association get up and going and take over some of the education functions. They don't have the money to do that. We hope to offer some educational opportunities to help people in the business keep up their accreditations. We're working with the Health Department to get people soils qualified. There's only one school in Arkansas where you get soil qualified and it's a two-year course.

We're trying to work with homeowners who don't have money to fix their systems when they do fail. So we're looking for sources of grants and low-interest loans and get that set up. It would be a benefit to everyone if we could clean up those systems.

I've been keeping up with the [U.S. Environmental Protection Agency's] work on nonprofit sewer companies. Arkansas passed a law four or five years ago to allow them [EPA in 2004 established the National Onsite Wastewater Demonstration Project grant program to build and operate cluster systems to serve groups of homes located outside municipal sewer systems]. I've

If you've ever complained about a new regulation or not knowing about [a new rule] until two or three months after it passed, then you need to join the association so you will have a chance to have input when it is being discussed.

- Don Daley

been pursuing how we can set them up out in the rural areas. We have a lot of lakes and poor soils, so we're studying the types of systems we can put in around the state to help counties and developers install small community cluster systems so areas can be developed.

The more we try to do, the more money we need. We want to be a benefit to everybody and get what is best for the people of the state.

What do you have to say to the onsite professionals in Arkansas reading this right now?

Daley: If you've ever complained about a new regulation or not knowing about [a new rule] until two or three months after it passed, then you need to join

the association so you will have a chance to have input when it is being discussed. Without that, you only get to complain about it. So join us and complain upfront when it matters!

(continued)



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Our website was built by my wife and I. We'd like to have a newsletter. We're just looking for anybody who is willing to contribute in any way. We can always find a spot for them to do something.

There are other states without industry groups like ARKOWA. What suggestions would you have for installers interested in starting a trade group?

Daley: Get started. It's not that difficult if you can get some people to help you send out flyers and get information out. We spent two weekends calling people right before the legislature went into session. I sent out emails every week about what was happening during the legislative session to keep people informed. That's when people are interested because that's when the laws are going to change and people want input.

ARKOWA Board of Directors

The Board of Directors of the Arkansas Onsite Wastewater Association represent all areas of the onsite wastewater industry. The officers are:

President Don Daley
Designer - Sitewise LLC

Secretary/Treasurer Peggy Daley

Designer - Sitewise LLC

Joe Smith
Installer - Smith Excavatin

Mike O'Connor Manufacturer - Clear Flow

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Many states have active, successful organizations. Do you have a message for them?

Daley: Anybody who has any information about programs they've used to get things going, we'd like to hear it. Some have suggested we get together with the national organizations. That's an option as soon as we get the money put together. Everything ties back to money and membership. We would like to, but we don't even have enough money to send people to meetings and conventions to bring back information to help us; we have to do it all on our own dime. We'd love to be able to go to those things because that's where we're going to learn.

In 10 years, what will the Arkansas Onsite Wastewater Association look like?

Daley: [Laughing] It looks like I'm gone! Hopefully somebody has taken over for me.

We've taken over most of the education work from the health department. We have people on the board looking at regulations and what has to be done to improve onsite wastewater in Arkansas.

We're working with the Health Department in a team effort. We started by focusing on our onsite people and educating them. At some point, we brought the health department on board and we're working together on the best things we can do to keep the water quality of the state safe and secure, and also allow the people of the state to enjoy their property and have the things they want for themselves and their families. It's a trade-off. You have to have regulations that make it good for everybody.

I'm hoping we get to a point where the regulations are thoughtful to the water resources and the homeowners and residents of the state. ■



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Moreover, the Gales are in the process of grooming their daughter, Shelley, to take over the business in a few years. Shelley returned to Newfoundland in 2009 after spending five years traveling and working in Southeast Asia and England and another five years working in western Canada.

STARTING FROM SCRATCH

A lack of competition coupled with demand for service prompted Gerard and Marg to establish Gale's Septic. After several decades of working as a welder in the boilermaker trade, Gerard was looking for a new business

to tide the couple over until his retirement. Since all homes and businesses in the area rely on septic systems, the couple saw an opportunity.

"We started off by welding a 1,000-gallon tank to a trailer," Marg says. "The only other provider was 150 miles away. One of our biggest challenges was tanks that haven't been pumped for years. In fact, I grew up in a house with a family of 16, and our tank wasn't pumped until we started the business.

"We still pump tanks that haven't been cleaned for 30 years, and some of them still function," she continues. "It's strange how it works. They must have very good drainage

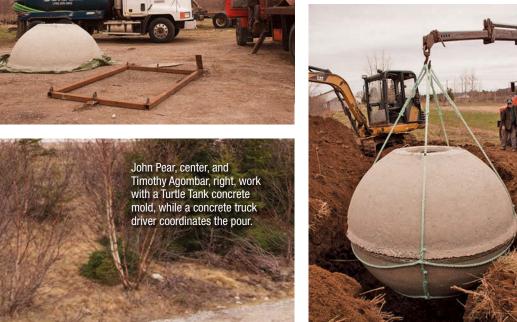
(continued)

We've seen some pretty crazy tanks around here ... people who buried old cars and ran a pipe down into them, or built big wooden boxes. Some people have pretty much buried just about anything and used it as a tank. But we think people will want to put something in the ground that lasts.

— Brian Favreau

Left: Gerard Gale works the boom truck, moving a freshly made tank half at the Gale's Septic yard.

Below: Gerard Gale stands by the boom truck while a new Turtle Tank is lowered into the ground.







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Settling Down: World traveler returns home to take over the family pumping business

After five years of working and traveling overseas – including stays in Thailand, Vietnam, Australia and England – and five more years of working in western Canada, Shelley Gale realized it was time to come home to Newfoundland and do something she'd never planned on: operate Gale's Septic Cleaning Ltd., the business her parents, Gerard and Marg, established in 1993.

"I really wanted to see the world, and I did," says Shelley, 37. "But I reached the point where I wanted to be closer to my parents. Then they got onto the Turtle Tanks idea and said they'd only do it [invest in a Turtle Tanks franchise] if I came home and eventually ran the business."

Shelley's experiences abroad – especially in India and Indonesia – provided her with a greater appreciation for the services her parents have provided for the last 20 years.

"I saw lots of septic problems and issues, especially in India," she says. "If I could get the financial backing, I'd set up a business over there ... you could save so many people from dying of diseases. They don't have a handle on treating sewage at all. In India, it's everywhere – in the middle of streets and on sidewalks ... it's crazy, especially from my perspective, coming from a family that runs a septic company."

Shelley says she enjoyed many adventures overseas, but none as harrowing as the tsunami that devastated Indonesian coastlines on the morning of Dec. 26, 2004. She was on a small island off the coast of Thailand when it hit.

"A friend came running up and woke us up, saying, 'The sea is coming! The sea is coming!' "
she relates. "There were two warning waves. The first one came up to my ankles, followed by one that came in up to my waist. Then the ocean was sucked out – just disappeared. Something clicked that this wasn't right, so we started running.

"We ran up a mountain and stayed there for a couple days," she adds. "There weren't many deaths on the island because it's not very populated. But there was a lot of destruction ... we were very lucky. We were still asleep, and had our friend not come running to warn us ..."

In Newfoundland, many young people move away because jobs are scarce. As such, many businesses shut down when the owners retire,

instead of passing it down to a next generation. Shelley says she's happy to reverse that trend. While she'd like to try some new ideas, she says she'll always value her parents' opinions and look to them for quidance and advice.

"Some people might ask their parents to step away once they own it," she says. "But I don't look at it that way. I respect that this was my parents' business and will look at it that way even after we own it. They worked their whole lives for this and gave up a lot over the years, and I want to respect that."

In the long run, Shelley believes that the recent discoveries of mineral, oil and gas deposits in Newfoundland and Labrador will result in an economic boom that will entice more people to move back. That, in turn, could create stronger demand for septic tank installations and pumping service.

"I know many people who are waiting to move back here," she says. "I'm very optimistic. I think we have something good here that's going to do well."

systems. Most of the steel tanks we pump are 500- or 600-gallon capacities."

Business was slow at first. But with telephone book and newspaper advertising, Marg says people gradually caught on to the fact that they benefit from having their septic tanks pumped regularly. Word-of-mouth referrals also spurred growth.

The company's roster of equipment has expanded over the years. The company currently owns a 2004 Mack truck, bought used, with a 2,500-gallon steel tank and Fruitland Manufacturing pump; a boom truck built on a 2006 Sterling chassis with a 12-ton capacity Hiab crane; two backhoes made by Caterpillar Inc.; a Crust Buster made by Schmitz Brothers LLC; a Steam Jenny pressure washer, manufactured by Jenny Products Inc. and used to clean machinery; a 14-foot Ford box truck to transport supplies; and a 2012 Ford F-450 pickup truck.

EASY WASTE DISPOSAL

Fuel prices pose a constant challenge, especially with a service rig getting about 7 mpg. The cost of fuel is built into the company's rates, and Marg is thankful that, for the most part, customers understand and don't complain about the company adjusting prices as fuel costs rise.

On the other hand, the company can dispose of septic waste more costeffectively than most haulers, transferring it to a collection pit located on land the company leases about 10 miles from its home office. The operation allows the Gales to cut down on transportation costs. Such pits are legal



in Canada and subject to an annual inspection by the provincial government; Gale's Septic has been using the same pit since the company's inception.

The pit measures roughly 120 feet long by 80 feet wide by 8 feet deep. It's located in a former gravel pit, so it drains well. Before dumping waste, employees add The crew talks about the day's work orders with the company vacuum truck, a 2004 Mack with a 2,500-gallon steel tank and Fruitland Manufacturing pump. Shown, left to right, are Shelley Gale, Timothy Agombar and Gerard Gale.

Bio-Clean, a blend of bacteria and enzymes that break down septic waste, into the tank. The company collects an average of about 12,500 gallons of waste a week, Marg says.

Thanks to the pit's location near the center of the company's service area, it's easy to achieve route efficiency; the driver generally runs routes in out-and-back fashion in whatever direction makes the most sense on each



day. "When we go, we book for a full load – usually three or four customers," Marg explains, noting that a full route takes a whole day to complete. "We try to save a dollar wherever we can."

TANKS SPUR GROWTH

Motivated by the prevalence of failing steel tanks throughout their service area, Marg and Gerard decided to sell and install Turtle Tanks in 2009. Under a franchise

agreement, the couple can manufacture the 1,000-gallon tanks, using a set of forms that create two halves of the round tanks.

Concrete is solving a big problem with the steel tanks, which the Gales say are proving to rust out in 15 to 20 years. "My parents have a concrete tank that's 80 years old and they're still using it today," she says.

"We can get concrete whenever we need it ... the supplier is only about 30 miles away," she adds. "We usually keep seven tanks in stock. We made six molds for ourselves [based off the original mold from Turtle]. That was a winter project. Gerard is a welder by trade, so he's very resourceful and

creative."

One of our biggest challenges was tanks that haven't been pumped for years. In fact, I grew up in a house with a family of 16, and our tank wasn't pumped until we started the business.

- Marg Gale

The Turtle Tanks are easy to install because they don't require squared-off excavating, which is more difficult and takes more time to do. At about 4,000 pounds total, the tanks also weigh less than traditional concrete tanks, meaning Gale's Septic doesn't need larger cranes to handle them. Furthermore, the couple says, round tanks are easier to clean because there aren't any hard-to-reach corners where waste can get stuck.

Marg Gale was featured in

a Newfoundland newspaper

for whimsical characters she

painted on the side of septic

Gale's Septic Cleaning. An avid photographer, she picked up a brush and started to decorate

tanks on display in front of

the tanks as a hobby. They

passersby.

attract a lot of attention from

"We think there's strong market potential," she continues. "We've

seen some pretty crazy tanks around here ... people who buried old cars and ran a pipe down into them, or built big wooden boxes. Some people have pretty much buried just about anything and used it as a tank. But we think people will want to put something in the ground that lasts."

That growth potential is gaining traction; Marg says tank sales and additional pumping have helped business revenue grow by 50 percent last year. But further growth will require ongoing customer education about the benefits of concrete tanks, especially since steel tanks cost about \$400 less – a considerable sum of money for many budget-strapped families in the area, Shelley notes.

THE NEXT GENERATION

Marg and Gerard plan to hand off the business entirely within the next few years. Marg says Shelley's world travels have prepared her for running the business. Currently, Shelley handles many office-management functions while learning the ropes.

"All her traveling turned my hair gray, but it did wonders for Shelley in terms of knowledge, confidence and self-esteem," Marg says. "She learned how to survive on her own over there ... she even survived the [2004] Indonesian tsunami, so running a business should be much easier than that.

"She has two small children now, so she's settling down," she adds. "She was in high school when we started, so she grew up with the business. We're expecting a very smooth transition."

MORE INFO

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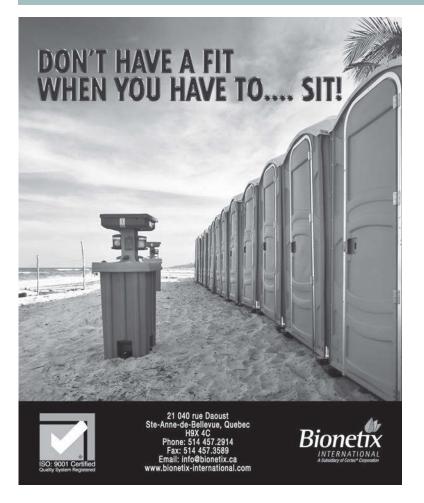
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Rules and Regs is a monthly feature in *Pumper*. We welcome information about state or local regulations of potential broad interest to onsite contractors. Send ideas to editor@pumper.com.

Onsite design and installation updates a long time coming in rural Ohio

By Doug Day and Sharon Verbeten

roposed rule changes for the design and installation of septic systems represent the first update to the standards in 35 years in many areas of rural Ohio. It is estimated that one-fourth of Ohio's 88 counties have not made any significant updates since the rules were first adopted. About 31 percent of systems statewide need to be repaired or replaced, according to a survey conducted by the Ohio Department of Health.

The state department asked all local health districts and departments to identify the number of household sewage treatment systems – septic tanks and pretreatment systems – and determine how many of those were failing. Failure rates were much higher in the northern and central counties than those reported from the southern portion of the state. The new rules would not apply to existing systems in good working order. The proposal is available for review at www.odh.ohio.gov/HomeSewageRules.

Maryland

A coalition of rural counties in Maryland claims the state's septic systems regulations have more to do with controlling development in rural counties than with improving water quality in the Chesapeake Bay. The seven counties agree about the importance of improving water quality, but don't like the way the state is trying to accomplish that goal. The coalition says septic system improvements expected to cost \$3.7 billion will reduce nitrogen in the Bay by only 620 tons per year, while the stormwater management pond at the Conowingo Dam dumped an estimated 115,910 tons when it overflowed in a tropical storm in 2011. A spokesman says the most money being spent on nitrogen reduction is for septic systems that contribute the least nitrogen

to the Chesapeake Bay compared with stormwater, wastewater treatment plants and agriculture. The state has estimated septic systems contribute about 8 percent of the Chesapeake Bay's total nitrogen.

Alaska

The owner of a Fairbanks pumping company has been ordered to eliminate odor coming from lagoons filled with septage. Robert Riddle, of Fairbanks Pumping and Thawing, began storing the septage in 2005 with intentions to use it as farm fertilizer. Since 2010, he has accepted another 2.5 million gallons of septage from another company, according to court documents.

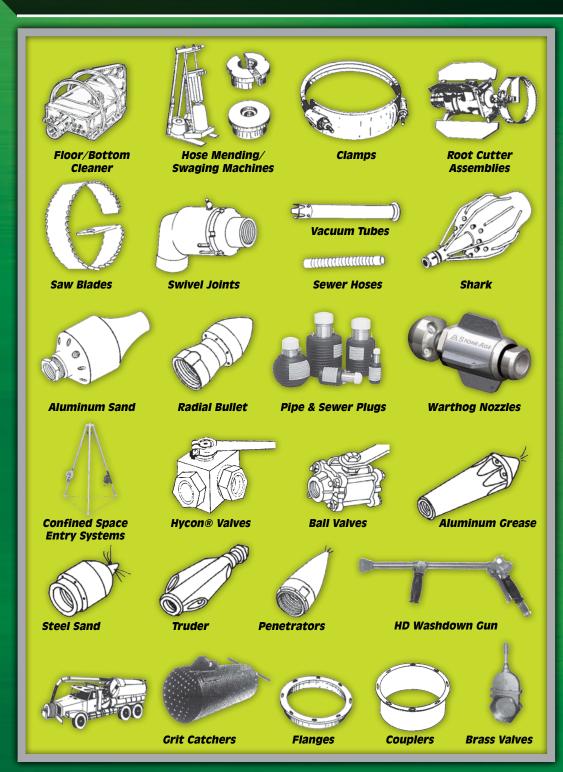
The developer of a nearby property filed suit claiming the smell drove neighbors indoors. Riddle claimed he was covered by the state's Right-To-Farm Act, but the court disagreed, saying he doesn't qualify as a commercial farm because he doesn't sell any farm products.

Oregon

It's been 10 years since new septic tanks were allowed in the city of Medford in southwest Oregon. The city council has now lifted that ban, allowing septic tanks if the property is located more than 300 feet from a sewer line. In 2003, the council voted to prohibit septic systems in the city, turning down a Public Works recommendation to include the distance exception. ■



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Dumping Done Right

Clean, convenient and providing spiffs like holiday bonus gallons and cold drinks in the summer, a Michigan septage receiving station has become a model for the industry By Scottie Dayton

uring the planning stage to construct a large wastewater conveyance system from Livingston County (Mich.) to Genesee County, Livingston County Environmental Health Director Dianne McCormick approached county Drain Commissioner Brian Jonckheere about incorporating septage. The five-year maintenance cycle for the county's 42,000 septic tanks produced 12 million gallons of septage annually. With 1,000 new onsite systems permitted yearly, the agency estimated land application rates of 9 to 13 million gallons annually.

In 2004, a new state law granted local governments the authority to ban land application and dictate where to dispose of septage. The mandate also required haulers within 25 miles of wastewater treatment facilities to use them, and banned winter application on frozen ground. Some haulers were close to losing their sites due to development or change of ownership. For many, a septage receiving station would eliminate a 40- to 50-mile round-trip to the nearest treatment facility.

Because the 65- by 71-foot-long station would contain a lift station and be near a freeway exit, engineering firm Williams and Works and architects Lindhout and



Brian Jonckheere may be reached at 517/546-0040.

Associates designed it to resemble a firehouse. Extensive landscaping and two interior unloading bays further camouflaged the facility, placating business owners and residents.

Conveniences for haulers included proximity card access and prepaid, debit-based billing. The fully automated station came in at \$3.1 million. "Fortunately, I had the support of the county board," says Jonckheere. "Their concern was how much pumpouts would cost if we didn't build it. We knew it would be substantial."

Since the station opened in May 2007, septage volume has risen from 3.7 million metered gallons to 18 million in 2013. Part of its success is because haulers helped design it and Jonckheere knows how to treat them right.

Pumper: What is a drain commission?

Jonckheere: The position is unique to Michigan. We're involved in every aspect of water resources, including constructing stormwater and sanitary sewers under the Department of Public Works. I'm its director.

Pumper: What was the most important element in planning the station? **Jonckheere:** We needed a waste stream large enough to dilute septage.

Since we were constructing a conveyance system to send Livingston County sewage to the 22 mgd [design] Genesee County District 3 Wastewater Plant in Linden, we began working with their officials.

Politics made it impossible to locate the station at the plant where it made the most sense. That left pump stations near Class A all-weather roads, and Hartland Township had one. Frost laws prohibit haulers from transporting more than 1,500 to 2,000 gallons on many roads in spring. We built a Class A road from the freeway interchange to the station, enabling haulers to transport full loads year-round.

Pumper: What kind of political backing did you need and how much opposition was there?

Jonckheere: This is the most fascinating part of the story. The DEQ stated that most proposed receiving stations fail due to local resistance, and some

During hot weather, haulers arrive covered in perspiration, so last year we handed out Chilly Pads from Frogg Toggs. The hyperevaporative material retains water, which remains dry to the touch and begins cooling in seconds. The drivers love them.

- Brian Jonckheere

of ours was vehement. The stiffest opposition came from Hartland Township residents, who believed their property values would diminish. While septage receiving stations are all over the state, most are outdoors, dirty and smelly.

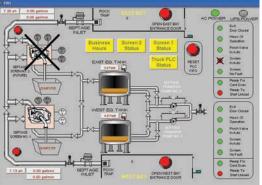
The DEQ septage staff supported our efforts. However, some staffers involved with treatment plant oversight resisted because septage could possibly upset treatment at the facilities. That's when Genesee interference. County ran providing septage calculations, helping with engineering and championing our cause. Getting everyone on the same page took three years

of enormous effort. Today, we have the only enclosed municipal septage receiving station in the state.

Pumper: What role did haulers play in designing the station? **Jonckheere:** They were involved from the beginning. As soon as I had a partially completed set of plans, I held a meeting. About 20 haulers arrived – everyone from our county and a few from surrounding counties. One hauler noticed that all the equipment was on the same elevation as the truck bays,



Designing the 65by 71-foot-long septage receiving station to resemble a firehouse placated business owners and residents. (Photos courtesy of Brian Jonckheere)



PortALogic (EleMech Services) software shows which bays are active, septage pH, discharge volume and rate, and volume in the equalization tanks.

forcing him to pressurize the tank to off-load instead of using gravity. Without his comment, retrofitting the station for gravity feed would have

cost \$500,000 to \$750,000. Instead, we lowered the screening room floor and the hose connection

in each bay. We also put a 6-inch depression in the bay floors that tips the trucks backward to empty the tanks fully.

Pumper: How did you pay for the facility?

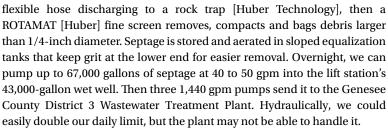
Jonckheere: I asked the county board to sell a \$3.1 million bond that we would pay for with revenues. They did. Then we passed an ordinance banning land application to bring most septage to the station.

Initially, some haulers could pump in Livingston County, then off-load at Detroit for 0.01 cent a gallon. Our tipping fee was 0.0725 cents per gallon. Once Detroit raised its rates in 2009, our station really took off, even with our fee at 0.0775 cents per gallon. Receiving treatment plants in our area charge 0.06 to 0.12 cents per gallon, and most are at the low end. Our goal has always been to lower the price. If we have enough volume this year, we'll probably do it.

Pumper: What volume was necessary to operate in the black? **Jonckheere:** Just to pay the bills, I needed 9.5 million gallons per year. That didn't happen until 2010. We also pay a 0.01 cent per gallon hosting fee to Hartland Township. In 2012 and 2013, the station received 16.3 million gallons and 18 million gallons, enabling us to begin saving for maintenance. We also bought a second Huber fine screen for redundancy. We want a dependable facility haulers can count on every day without exception. They should never be forced to go somewhere else.

Pumper: How does the station operate?

Jonckheere: Each heated, 45-foot-long drive-through bay has a 6-inch



Because some rocks were reaching the fine screen, we lowered the

3-foot-tall trap 6 inches and installed a larger valve for easier cleaning.

Pumper: How does the station help haulers become

Haulers are in and out of the drive-thru station in 20 minutes because PortALogic (EleMech Services) access stations control everything.

The ROTAMAT (Huber Technology) fine screen removes, compacts and bags debris larger than 1/4 inch diameter.

efficient and remain profitable? Jonckheere: With swipe of a card, drivers are in and out in 20 minutes because PortALogic (EleMech Services) access stations control everything. They spit out multiple adhesive-backed receipts with the volume, truck number, time and pH. Haulers slap them on the sample bottle, their manifest and the manifest copy. A video surveillance

system enables them to see if trucks are waiting outside. Using the touch-screen computer, they can check the weather, look up health department records for the size and location of tanks at new sites, plot their course using Google maps and print the page.

We're always thinking about how to make the experience better, and that includes creature comforts. Besides a clean bathroom, a hospitality counter has free coffee, tea, and chilled or frozen Gatorade in summer. During hot weather, haulers arrive covered in perspiration, so last year we handed out Chilly Pads from Frogg Toggs. The hyper-evaporative material

Livingston County septage receiving station being used by local septic service operators, go to www.pumper.com and go to the "videos" tab.

To see the

retains water, which remains dry to the touch and begins cooling in seconds. The drivers love them. Our safety equipment includes eye wash, safety shower, sinks and carbon monoxide monitors.

In 2012, we rewarded the 24 haulers who supported us that year by giving them a Christmas bonus of 100,000 gallons at 0.07 a gallon through April 2013 plus 4,000 gallons more for each month they used the facility. They saved \$4,000 to \$5,000.

Pumper: What advice would you give haulers who want their county to build a septage receiving station?

Jonckheere: The key is having a treatment plant large enough to handle septage. Second, find a person who transcends local barriers and boundaries and will champion the cause. Third, the county must have good working relationships with townships. Fourth, they need a supportive township

Locating receiving stations at wastewater treatment plants makes the process easier and less controversial. Locating them in residential or commercial areas makes the process dicey.



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1999 International with Vac-Con V312LHA Jetter Truck \$65,500

Hendrickson spring/beam susp., automatic trans., power divider, AC, cruise, Vac-Con body SN: 10981961, full opening dumping tank, 3 blade positive displacement fan with aux. drive motor, telescoping boom, jetter reel, leg support, freshwater tanks, Beam 3 piston water pump, pressure washing wand, strobes, 22.5 rubber



2002 Mack CH613 with Marsh 2,300 Gal. Hazmat Tank \$49,500

Mack E-7 @ 400 hp., 9 spd., air ride, jake, cruise, ac, susp. dump, power divider, heated mirrors, elec. windows and doors, hub piloted steel rims, 2.25 tires 2001 Marsh Dot 407–412 coded tank, pop off, grounding cable, air controls to rear, 20" manway, catwallk, 17k/38k avles



1994 White GM with Cusco 3,150 Gal. Vacuum Truck \$39,500

Cat 3306 @ 305 hp., 9 spd., dbl. frame, 16k/40k axles, Hendrickson spring/beam susp., 220" WB, 1994 Cusco 3,150 gal. full opening/dumping tank, Farid M9 hyd. driven pump, 22.5 rubber



1998 Ford with
Keith Huber King Vac Hazardous Unit
\$109,500

Cummins 8.3 @ 300 hp., 8LL trans., Hendrickson spring/beam susp., power divider, Keith Huber King Vac with Kaiser 3,700 CFM liquid ring pump, 3,000 gal., 20" top manway, full opening/dumping tank, 6" discharge valve, high pressure jetter system, fresh water compartment in spoils tank, 48 hours showing on jetter, 2,251 hours showing on vac unit, aux. pres/wac pump, rollover protection, Hazardous tank, 22.5 rubber, 16,500 front/46k rear



1995 Mack RD688S 4,000 Gal. Hazardous Pres Vac Truck \$59,500

E-7 @ 350 hp., 8LL, camel back susp., jake, 20k/46k axles, Westech hazardous full opening/dumping tank, grounding cable, New Hibon hyd. driven blower, block heater, pintle, tool boxes



(3) 2011 Mack Granite Tri Axle 4,600 Gal. Pres Vac Truck

\$119,000 10 SPD/\$135,000 Auto

Mack MP-8 @ 505 hp., Mack air ride, (1)Eaton 10 spd., (2) automatic, 18K/20K/46K axles, super single air up/down pusher, grounding cable, Galyean 4,620 gal. steel vac tank with 20" manway and valve heaters, Jurop rotary vane pres/vac pump, hose trays, AC/jake/cruise, electric windows and door locks, heated mirrors, block heater, catwalk, 5.38 ratio, 207K miles showing on 10 spd., 166K/176K showing on auto's, 292" WB



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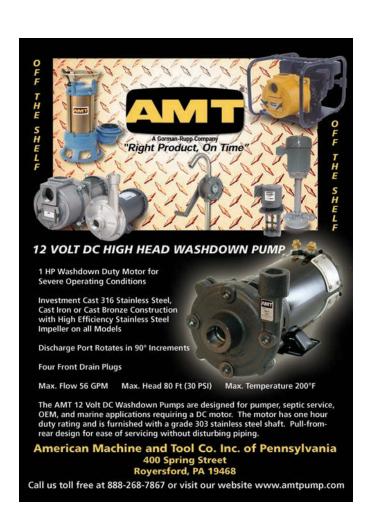




Fire Up the Grill

A poster dug up an old system for an inspection, and was surprised to find a tank lid manufactured by Weber

This feature in Pumper reports noteworthy conversations that take place at the Pumper Discussion Forum, an online forum for industry professionals found at www.pumper.com. Pumper Discussion enables exchange of information and ideas on septic and drainfield installation and maintenance, trucks and equipment, portable sanitation, chemical and additives and much more. Information and advice in "Overheard Online" is offered in good faith by industry professionals. However, readers should consult in depth with appropriate industry sources before applying such advice to a specific business situation.





QUESTION:

So here we are in January, with about a foot of snow on the ground. A customer wants to sell the house, but the buyer wants to have the septic system inspected. So I get called to find and pump the tank. I found it and start digging, and as I am digging, I start to uncover a cover I have never seen before but it looks kind of familiar. Yep, the top of a Weber grill. The tank is a common one (around here), 500 gallons and steel, and the original cover had rusted out. So they replaced it with whatever was handy. Just when you think you have seen it all, out jumps a new one.

So I'm wondering, what is the weirdest/most unusual tank/lid you have come across?

ANSWERS:

That takes the cake. I could see a steel tank covered by a Weber grill lid killing a real estate sale. How did the inspection turn out, and did you toss the Weber lid back on and cover it up or talk to the owner about a better, safer solution?

*** * ***

Come spring, I may or may not be installing a riser and surface cover. The rest of the tank was surprisingly in good shape. Both inlet and outlet baffles were still intact. If I was a betting man, I would have bet on them being rusted away. In Michigan there has been a problem replacing old systems and people are scared to death of having to install mounds. There is not a lot of money around here. I do believe the sale is pending and looks like it is going through with a little bit of leeway given for the new lid.

*** * ***

One time I found a 4- by 4-foot, 1-inch-thick steel plate for a lid. That thing was heavy. The homeowner had to help me lift it out of the hole.

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Erik Gunn is a business writer in Racine, Wis. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or e-mailing editor@pumper.com.

New or Used?

There are important questions to answer before deciding which way to go on that next big equipment purchase By Erik Gunn

n two previous columns, we've looked at how you might finance an expensive new piece of equipment as well as what impact a major purchase could have when the time comes to sell your business.

This time we'll address one other issue: Is it better to buy new or used? That decision has implications both for financing and for the future sale of your company. But it also demands consideration simply on its own terms. In making that decision, you'll need to ask which will be the better value? And there's no one-size-fits-all answer.

Sometimes used is good enough. Sometimes it's even better. And sometimes, it's exactly the wrong decision.

LITTLE QUESTIONS INSIDE THE BIG QUESTION

Like many questions, the question of "Which is better, new or used?" actually has many other, much more specific questions lurking inside it. So our job today is to unmask those other little questions. Answer them, and you'll answer the big one.

Does the product change a lot? How soon does any particular model become obsolete?

If the answer to that first question is "Yes," the second will probably be "pretty darn soon." In that case, go for the new model: The used one is probably already out of date.

Consider how relatively inexpensive a brand new personal computer is today compared with the cost 10 years ago, and yet how much more powerful it is. Buying used would probably not be worth the money unless your actual computing needs were tiny and you know they would never change.

But lots of things don't change that fast, and when they do get added bells and whistles, those may be far from essential. So if the answer is "No," then buying used could be a good choice, depending on other factors.

Is it for a core service your business provides? Or is it for something you're just beginning to expand into?

The closer to your core business the item is, the more you're probably going to want to buy new. On the other hand, if you're getting this machine to branch into a new line of service, you might want to look for a cheaper used product, lowering your cost of entry into the new line and also cutting the "sunk cost" you've incurred should you decide that the new business isn't as profitable as you expected it would be.

What is the item's resale market?

That's actually a tricky question, and by itself, the answer won't actually tell you a whole lot. Here's why: If the resale market is good, you can read that as an argument for buying either new – you'll be able to sell it yourself

Going through a dealer with an established, positive reputation is likely to be the safer route for buying a used piece of equipment, rather than relying on, say, a stranger on Craigslist.

without much difficulty if you need to for any reason – or used – you'll have an easier time of finding a used item than if the resale market isn't so great. But it's still worth knowing by itself, because taken with all of these other questions, it can help you make the most informed decision possible.

Are older models actually better?

That happens sometimes. Think houses – what experienced homeowner do you know who doesn't swear older homes are better built – sturdier, more solid and with better craftsmanship? The key, of course, is that the designs might not fit your needs, or the home lacks newer features like better electrical and plumbing systems or dedicated media rooms or easily finished basements. But if the older models are better and are sufficient to your particular circumstances, that can be a good reason to purchase used.

What's the product's maintenance track record and its ongoing maintenance cost?

The better the record and the lower the cost, the safer you are buying used. The worse the record and the higher the continuing cost, the more you may wish to go with new, particularly if that way offers a better warranty. So researching reliability data is critical.

Can you trust the seller if it's used?

Going through a dealer with an established, positive reputation is likely to be the safer route for buying a used piece of equipment, rather than relying on, say, a stranger on Craigslist. If you do buy directly from an individual, make sure you really know what you're getting. Pay a mechanic to look it over before you sign the transaction agreement.

Can you inspect the unit in person?

If you can't, then walk away. You'll be making a big investment, regardless of whether you're buying new or used. To do that without being able to quite literally kick the tires – and do a whole lot more – is absurd.





Is the used product stock, or has it been modified?

The more modifications the previous owner has made to the machine before selling it to you, the greater the risk. Even if the seller is someone you consider completely trustworthy, you can't know what sort of aftermarket and seat-of-the-pants modifications might have rendered the machine less safe to use or more prone to a future breakdown – not to mention possibly voiding any remaining warranty on the product.

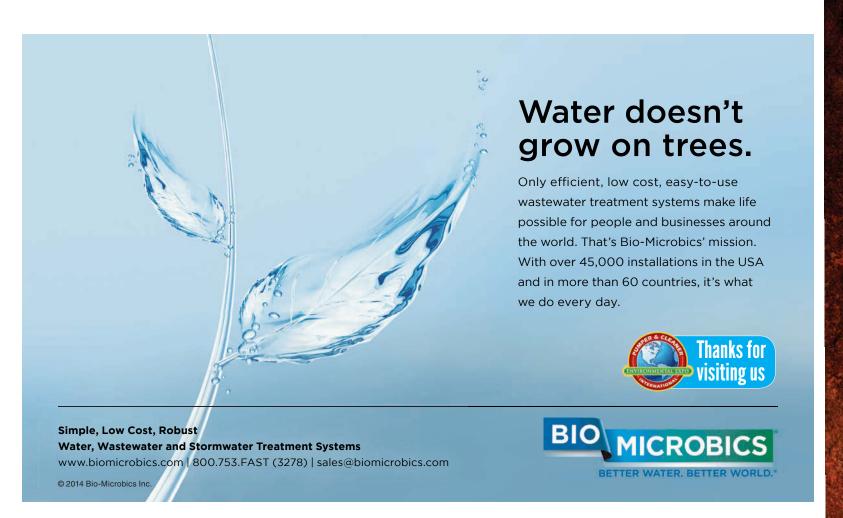
FINANCING AND RE-SELLING

Finally, consider what the new or used choice might mean for financing. Your options are probably fewer for financing used equipment – you'll probably have to go through a bank, especially if you buy from a private party. And older equipment might require a faster payoff on the loan and larger payments. Equipment you own has one other purpose you might not think of: It's a way to borrow money in the future if you suddenly face a cash crunch.

Don't over-leverage yourself now, when you first buy it. And think twice about buying used, if that means your actual equity against which you can borrow will be much less than if you bought new.

These aren't the easiest questions to answer, and some take a lot of research. But they're worth the time and energy, so that when you get that next big truck, you'll know you made the right decision – new or used. ■















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Jim Anderson, Ph.D., is an emeritus professor at the University of Minnesota Department of Soil Water and Climate, education coordinator for the National Association of Wastewater Technicians, 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.

Preventive Medicine

A thorough inspection, then repair or replacement of corroded baffles can save your customers the financial burden of a clogged drainfield By Jim Anderson

QUESTION: As I inspect a septic tank, how do I know when the baffles need to be replaced?

ANSWER: Through the years, I have had numerous discussions with service providers about concrete tank corrosion problems, including baffle deterioration – typically focusing on the outlet baffle.

In older tanks, the baffles were often cast-in-place concrete. In newer tanks, the baffles are sanitary tees, which allow for an effluent screen at the outlet. Many states and local governments require these baffles and screens for new construction. However, there are a lot of existing older tanks in varying conditions, which makes the timing of baffle replacement a legitimate inspection question.

It is important to remember the purpose of the baffles, which I wrote about in this column for a previous discussion on corrosion. The inlet baffle directs the flow from the house sewer downward into the tank creating a longer detention time for settling of solids. It also keeps the floating scum layer from plugging the inlet pipe.

BE PROACTIVE

The outlet baffle keeps floating scum or debris from passing to the drainfield and ensures the effluent going on to the next part of the system is from the tank's clear effluent zone. These days we enhance debris removal by using effluent screens to keep large floating solids from passing downstream.

My answer to the question then is: If the baffle is deteriorating and the deterioration prevents the baffle from doing what it is supposed to, it needs to be replaced. I personally would take it one step further to say if the deterioration is such that by the next scheduled maintenance visit it will not be working properly, it should be replaced.

The second part is subjective and it is easier to suggest it in this column than to convince the homeowner they need costly work done on their system. But if we are professionals, we need to be honest in these situations and try to convince them to replace the baffles now at a limited cost in order to save them money down the road if or when the soil treatment and dispersal area is damaged.

As indicated above, many permitting authorities require effluent screens if the tank is replaced or repaired. So it's important to know your state and local requirements for repair and replacement. Selling the homeowner on the idea that an effluent screen is an insurance policy to protect more expensive parts of their system should be relatively easy.

I'm including photos to help define what is being discussed. I would like to thank Jeff and Kim Seipp of High Plains Sanitation in Colorado for the photo of the outlet baffle. We have had a continuing discussion about tank



Left: This inlet baffle will be ineffective at directing flow downward for efficient settling.

Below: This corroded septic tank will not prevent scum or other debris from moving to the drainfield.

conditions and causes of corrosion. The other photo, sent from Arizona, was taken as part of a point-of-sale real estate inspection.

FULL TANK REPLACEMENT?

One photograph shows a poorly designed inlet baffle, which in my opinion is not going to fulfill the function of directing flow downward or prevent scum from plugging the baffle. There are probably some other concerns with this tank; since it looks like there is deterioration in



the lid and evidence that rebar is beginning to show through, which may mean the entire tank needs to be replaced. At the very least, the baffle needs to be replaced.

In the second photo, the outlet baffle is deteriorating and will no longer prevent scum or other debris from moving downstream, so it should be replaced. There is one other problem evident here: The piping is far enough inside the tank that there is not much clear space between the baffle wall and the piping. The good news is this is the outlet baffle and so solids plugging should not be an issue; but the piping out should be looked at and corrected when the baffle is replaced.

One important note: When removing the remains of the concrete baffle, use caution so the tank wall is not damaged. In some cases, checking out the baffle will lead to evidence that the tank is deteriorating and in need of replacement. This situation reinforces the importance of having an informative conversation with the homeowner.

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Thanks to Attendees at NAWT Sessions Before and During the Expo

By Dhru Bhatt

e would like to extend a thank-you to all of the people who attended one or more of our sessions either the weekend before the Pumper & Cleaner Environmental Expo International started or during the Expo. Also, thanks to everyone who stopped by the National Association of Wastewater Technicians booth during the Expo. Hopefully, the stress balls we gave out continue to give you an outlet during those stressful times!

We could not have had such a successful Expo without a lot of help and a lot of volunteer time. If you were not able to make it to one of our workshops, you missed a really good experience and we hope to see you at one next year. A number of industry sponsors have helped with our education programs throughout the year. There is not enough we can say about their unwavering support of our mission to provide an educational outlet and national voice for our industry. Please keep them in mind when you are making purchases of products or services.

At risk of forgetting someone, here is a list of those who have helped recently: Bright Dyes, Boerger Pumps, Crust Busters, Fournier, Fruitland, Jack Doheny Supplies, Lakeside Equipment, Dave Flagg and Septic Services. Numerous other volunteers and speakers gave highly of their time. In future columns we will take time to focus on individuals who make the organization go.

If you or your company would like to sponsor educational programs throughout the year, or want to offer other ways you can help, contact the NAWT office for information on where you can help be an important link to the industry.

DON'T FORGET THE NAWT SCHOLARSHIP PROGRAM

Now is not too early to encourage high school seniors and current college students to apply for the William Hapchuk Memorial Scholarship. NAWT awards a \$1,000 scholarship every year to the winner of the NAWT essay contest. Applicants must create, design and submit a slogan or a bumper sticker representing NAWT and then write a short essay explaining their entry by Jan. 1, 2015. The application can be downloaded at www. nawt.org.

Only full-time college students by fall 2014 are eligible for the Hapchuk scholarship. Participation is open to students majoring in environmental science, life science or related curriculum.

NAWT EXCELLENCE IN SERVICE AWARD 2013

The NAWT board of directors established an Excellence in Service Award in 2010, replacing the former "Man of the Year" award. The new award reflects the changing industry and the changing times and provides the opportunity to recognize the NAWT member or NAWT-sponsored individual or company that has shown exceptional accomplishments in their service to the community and to the wastewater profession. This award is presented at the Pumper and Cleaner Expo during an association breakfast meeting. Nominations should be submitted to the NAWT office by Nov. 1, 2014. ■

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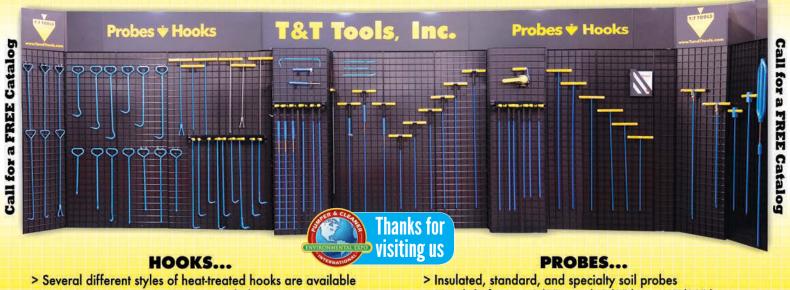
THANK YOU TO ALL WHO CAME OUT TO SEE US AT THE SHOW!

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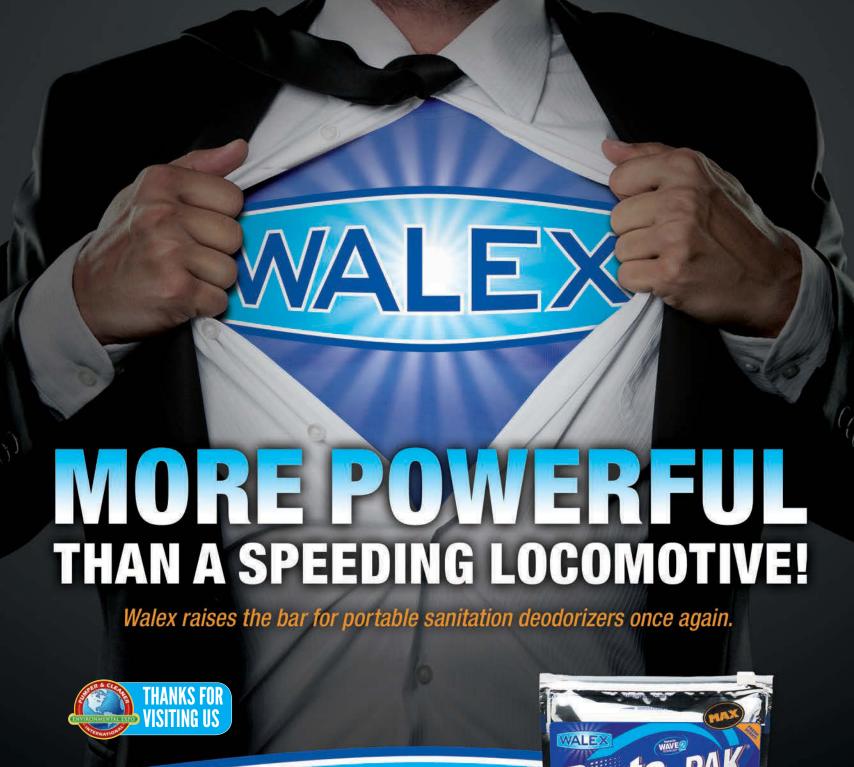
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wner Ron Morris maintains this 1999 Kenworth T-800 built out by Advance Pump & Equipment with a 3,600-gallon aluminum tank and Moro PM100T vacuum pump. The truck is powered by an N-14 Red Top Cummins engine producing 525 hp, with power to the wheels via a 13-speed Road Ranger transmission. The truck has a 20,000-pound air tag axle and 26,000-pound rear axle. A 200-gallon freshwater compartment in the tank feeds an Advance Pump JT1030 3,000 psi toolbox jetter system with remote control and air hose reel. Other features include rear sight glasses, work lights, aluminum wheels, and chrome accessories including stacks, rooftop horns and windshield visor. The truck was originally a triaxle that was shortened by Morris before the build-out in 2012. The engine has more than a million miles and was refreshed in 2012. It's a daily driver serving residential septic and commercial customers.

SHOW US YOURS!

Got a truck with real WOW appeal? Show it off to *Pumper* readers!

Send photos of your truck after it has been lettered with your company name. Any industry-related truck is acceptable. Please limit your submission to one truck only.

Your Classy Truck submission must include your name, company name, mailing address, phone number, and details about the truck, including tank size, cab/chassis information, pump information, the company that built the truck, and any other details you consider important. In particular, tell us what features of the truck help make your work life more efficient and more profitable. Email your materials to editor@pumper.com or mail to Editor, *Pumper*, P.O. Box 220, Three Lakes, WI 54562. We look forward to hearing from you!







TECHNOLOGY

RESPONSIBILITY



Flex Your Muscles

What if we told you that we could offer even more flexibility to our Vac-Con product line by increasing the mobility, reach and flexibility of our telescopic boom? We have done just that with the Vac-Con Power Flex Boom! The new Power Flex Boom extends up to 28.5 ft. from the machine and rotates up to 315 degrees. On top of that, the boom articulates up to 110 degrees and will lift up to 34 ft. into the air.

This new feature, that can be mounted on a Vac-Con combination sewer cleaner, X-Cavator™ and industrial machine, truly illustrates the expertise of the innovative Vac-Con team. Are you ready to *flex* your muscles?

To learn more about the Vac-Con Power Flex Boom, go to our website at Vac-con.com
Scan the QR Code to view a short product demonstration video!

A HOLDEN CINDUSTRIES Company







Onsite Septic Systems and Maintenance

By Craig Mandli

For septic service contractors interested in expanding their operations into the installation and maintenance of onsite systems, here are several tanks, components and bacteria products to help serve customers:

SEPTIC TANKS

LARGE-CAPACITY SEPTIC TANK

 $\begin{array}{lll} \text{The} & \textbf{IM-1530} & \text{large-capacity} \\ \text{tank} & \text{from} & \textbf{Infiltrator} & \textbf{Systems} \end{array}$

is a lightweight, durable and watertight tank providing strength in a two-piece design. It features an integral heavy-duty lid and TW Riser system, structurally reinforced access ports, reinforced structural ribbing and fiberglass support posts to provide additional strength. No special installation, backfill or water filling procedures are required. The two-piece design allows the tank halves to nest, reducing freight costs. 800/221-4436; www.infiltratorsystems.com.



The **J-500-800PLT** plastic tank from **Jet Inc.** offers a lightweight alternative to concrete J-1500 Series BAT Media Plants. The tank offers variable treatment capacity from 500 to 800 gpd. They are rotational molded using lightweight, polyethylene material to offer a seamless tank for strength and durability. They are easy to transport,

can be installed in difficult site conditions, and are locally supported by a global network of trained and certified distributors. **800/321-6960**; www.jetincorp.com.

VERSATILE TANK

The MultiTank from Roth Global Plastics can be used for water cistern, pump, holding, rainwater or septic tank applications. This is possible due to its inner layer of FDA-approved virgin HDPE, two inside layers of polyethylene for improved stability, plus one outer layer of black and UV-stabilized polyethylene. Features include CSA, NSF and IAPMO certification, a COEX-4 multilayer co-extrusion process, a low-profile design that means less digging and avoidance of a high-water table, lightweight construction, a multi-port inlet/outlet convenient for field piping, the ability to enter and exit the tank on the ends or sides, two 24-inch manways to provide easy access for maintenance and service, a cylindrical shape that requires no water for backfill, a threaded riser system and water-tight seamless construction. 866/943-7256; www.rothmultitank.com.

TREATMENT SYSTEMS

PIPE-LEACHING SYSTEM



The **GEO-flow** HDPE pipe-leaching system from **Advanced Drainage Systems Inc.** promotes an oxygen-rich environment for increased biomat activity. It is comprised of a combination of a 10-inch-diameter, single-wall high-density

polyethylene (HDPE) corrugated pipe, surrounded in a polypropylene grid, both encased in geotextile fabric. This design creates equal distribution and enhances biological reduction of wastewater before it leaves this pipe system. Its test-proven treatment capability supports the system sizing reductions required by many state health departments. 800/821-6710; www.ads-pipe.com.

CASE STUDIES

LEACHING CHAMBERS INSTALLED AT BEACHFRONT SNACK BAR

Problem: Sandy Beach at Lake Morris in Bantam, Conn., was undergoing a renovation, including the installation of a new snack bar with a grease trap, bathrooms and a bath station. Since the existing septic system from the 1950s was outdated, a new innovative system was needed to provide enough storage to accommodate the updates.

Solution: Contractors at Green Construction Management LLC consulted with **CULTEC** Inc. to design and install a Connecticut Department of Energy & Environmental Protection-approved subsurface septic system that would provide increased storage and dispersion of sewage effluent. The contractor installed a 2-inch pipe that pumps approximately 400 feet across the beachfront, where it meets a splitter valve system. The splitter valve separates into four distribution boxes, which then run on top of two 100-foot double rows of **CULTEC Contactor 100HD** plastic leaching chambers – 54 chambers total. The 2-inch line features



1/4-inch holes every three feet that drain into the chambers.

Result: This new system design provides efficient handling of the snack bar's increased sewage flow. The municipality reports no issues. **800/428-5832**; www.cultec.com.

SAND FILTER PROVIDES SOLUTION TO CABIN CONVERTED TO A FULL-TIME DWELLING

Problem: In southcentral Pennsylvania, homeowners were attempting to turn a 50-year-old cabin into a full-time residence. In the rustic dwelling, an outhouse was used, while a 5-gallon bucket beneath the floor collected graywater. A small pump discharged graywater to the surface at the rear of the property. Ultimately, concerns of the adjoining property owner led to an investigation by the municipality, and the property owner was required to upgrade wastewater facilities. Lot size, well-isolation distance, site accessibility, absorption area, location and dwelling placement limited options.

Solution: The Eljen Geotextile Sand Filter system was chosen. Additional

constraints included placement of the dosing tank and property line proximity that required a lower installation height for the system. Time dosing of the system was an additional attractive feature, as the absorption area had been reduced in size to accommodate the property.



Result: The outhouse is gone and adjoining property owners are satisfied. **800/444-1359; www.eljen.com.**

TREATMENT SYSTEMS

WASTEWATER TREATMENT SYSTEM

MicroFAST wastewater treatment systems (500 to more than 9,000 gpd) from Bio-Microbics are recommended for individual, small community and commercial applications. These "fixed integrated treatment technologies are integrated into standard septic tanks and do not require additional



space. Alternate modes of operation include recirculation of nitrified wastewater to the primary settling chamber for denitrification and (with the SFR feature) intermittent operation of the blower to reduce electricity usage up to 45 percent and improved nitrogen performance (in specific situations). They offer alternate, advanced treatment with higher levels of nitrogen removal to provide onsite wastewater treatment for new construction or retrofits to existing systems. The effluent meets secondary quality requirements and can be distributed to soil treatment systems or water reuse applications. 800/753-3278; www.biomicrobics.com.

ADVANCED TREATMENT SYSTEM

The **AdvanTex AX-RT Series** of advanced treatment system from **Orenco Systems** is designed for system repair and rehabilitation. All interior components are pre-plumbed, installed and adjusted at the factory. The unit can be shallowly buried for use between a functional, watertight septic tank and functioning drainfield. Its four-in-one design includes recirculation, treatment, discharge and disinfection in a single unit to simplify installation and

eliminate the need for additional tanks, basins, risers and lids. The system can be maintained with an annual service call. Filters and textile media are accessible and cleanable. Panels are touch-safe. No blower is needed for the passively vented system. A UV disinfection unit is available. 800/348-9843; www.orenco.com.

MARINE SANITATION DEVICE

MarineFAST marine sanitation devices (certified Type II MSDs) from Scienco/FAST are designed for treatment of blackwater and graywater on vessels and offshore platforms, and can be installed on floating homes, houseboats, riverboat casinos/hotels, all types of work boats and tugboats, to provide total sewage treatment, pretreatment and (in some cases) water reuse opportunities. They produce effluent having fecal coliform bacteria no greater than 200 cfu per 100 mL



and TSS no greater than 150 mg/L. All devices must be U.S. Coast Guard-certified for vessels with galley and toilet facilities. They must comply with the 33 Code of Federal Regulation (CFR) Part 159 to prevent discharge of untreated sewage from vessels into the waters of the United States. **314**/**756**-**9300**; www.sciencofast.com.

RISERS

SEPTIC SAFETY LID RISER

Septic tank lid risers from **Tuf-Tite** feature internal supports or ledges to support internal plastic safety lids. The ledges will support the company's plastic internal safety lids or a variety of internal safety devices made by others, such as concrete,



fiberglass or rope netting. The riser lids come with all necessary mounting hardware including safety screws. **800/382-7009**; www.tuf-tite.com.

LIDS

SEPTIC TANK LID

Seal-r septic tank lids from **BrenLin Company** create a strong seal between the septic tank and the riser, effectively eliminating water infiltration between the riser and the tank. They are made of durable materials, range from 12 to 42 inches, and can be personalized with a company's information. The 42-inch lid meets growing demand for bigger risers to accommodate



new technology equipment. 888/606-1998; www.seal-r.com.

CASE STUDIES

PRODUCT USED TO PRETREAT BAKERY WASTEWATER

Problem: A full-service bakery in Ohio has a plant for pretreatment of bakery waste before discharging wastewater to the municipal wastewater treatment facility. The average daily wastewater influent to the pretreatment plant has a concentration of 6,000 to over 100,000 mg/L CBOD; average TSS of 6,000 mg/L, and oil and grease concentrations of 800 to 1,000 mg/L. The average daily flow is 15,000 to 25,000 gpd. This waste is treated aerobically in an activated sludge system consisting of two 50,000-gallon aerated tanks in series; then it is pumped from the second tank onto a gravity belt with polymer being injected into the waste stream.

Solution: EarthWorks Water Treat 10 from Green Way Products by PolyPortables was added to the system at a 2-gallon initial charge, then a quart per day for a 10-day period, and then a pint per day as a continuing maintenance dose. The object of adding it to this system was to increase biological activity and further reduce the oil and grease.

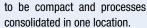


Result: The second aeration tank took on a darker brown color; there is no longer any grease

buildup on the paddles of the gravity thickener belt, and there has been a reduction in the polymer dosage of approximately 70 percent over previous levels. The average effluent discharge to the local wastewater treatment facility has a CBOD average of less than 200 mg/L, TSS of 200-400 mg/L, and an average oil and grease of 15 mg/L or less. **800/241-7951**; www.greenwayproducts.net.

HIGH-PERFORMANCE COMPACT TECHNOLOGY UPGRADES FAILING SHOPPING PLAZA SYSTEM

Problem: Installed over 30 years ago, the failing septic system of the Wilson Creek Shopping Plaza in British Columbia, Can., no longer met environmental standards. It was unable to treat its high-strength wastewater or handle high flow variations produced by many shops and restaurants. Pumpouts were frequent and the advanced treatment plant was beyond repair. The existing leaching bed was still functional, but showing signs of clogging. Half of the old system was installed behind the shopping mall, and half in the front. To maximize land value, the new treatment installation would need





Solution: Premier Tech Aqua collaborated with Telder Engineering Ltd. for the design and installation of the treatment plant. The new treatment station consists of septic and equalization tanks and one Segflo Recirculating

Biotower treatment unit. After pretreatment, wastewater flows by gravity to a pump chamber and into the existing leaching bed.

Result: The high performance of the treatment station allowed for the regeneration and recycling of the existing disposal field — an economical solution that reduced the amount of land disrupted during installation. All tanks were installed below grade except for the Segflo unit, which was partially exposed. This portion was insulated and provided a mounting structure for the treatment plant control panel. With a design criteria for influent of 1,000 mg/L in CB0D5 and 300 mg/L in TSS and an average daily flow of 3,170 gpd, the system consistently provides performances of 230 mg/L in CB0D5 and less than 30 mg/L in TSS. **800/632-6356; www.premiertechaqua.com.**

SEPTIC LID COVER

Dekorra Products 108, 111 and 112 model septic tank lid covers are designed to fit over lids up to 25 inches in diameter and risers up to 4 inches in height with the 108 model, 30 inches in diameter and risers up to 6 inches in height with the 112 model, or up to 12 inches with the 111 model. Models include realistic RealRock detailed design, available in four colors, and include



plastic stakes for securing the rocks to the ground. Each model includes a built-out area to assist with covering junction boxes attached to the side of risers or lids, making them ideal for covering unsightly items in landscaping. Models have available Pro-R foam-walled construction insulating value of R-3, except the 108 model. Weighing 10 pounds, access and routine service or pumping is easily achieved. The covers are durable, won't fade in the sun or crack in cold weather, and are made of recycled material. 888/635-8585; www.dekorraproducts.com.



POLYETHYLENE SEPTIC TANK COVER

Polyethylene septic tank covers from **Hedstrom Plastics** fit standard 18- and 24-inch double-wall corrugated pipe. Gaskets and safety hardware are included, with a safety net available. Covers can be filled with sand on site for added weight. Foam-filled lids are available upon request. Covers can be customized with a company name and are available with a tank adapter. **888/434-5891**; www.hedstromplastics.com.

ALARMS

OUTDOOR POST ALARM

The **AlarmBot** outdoor post alarm from **CSI Controls** features a clear alarm beacon and high-intensity red flashing LEDs for maximum visibility. It also has a weatherproof enclosure, safe and dependable 12-volt operation, four alternating high-intensity red flashing alarm LEDs viewable from 360 degrees, beep-tone audible with on/test/silent switch, and a universal plug to allow easy installation of any piggyback plug. It is factory sealed to help isolate gases and moisture. Pump and alarm power can be separated. The alarm can be mounted on 4-inch electrical conduit. **800/363-5842**; www.csicontrols.com.



EXTERIOR ALARM WITH AUXILIARY CONTACTS

The exterior alarm with auxiliary contacts from **Septronics** features a removable terminal board and effortless and straightforward alarm wiring. Units contain a power-on indicator light, and manual-reset-horn silence toggle switch. The latching relay allows the



light to remain on until the toggle reset is activated. It is an ideal addition to an alarm used on rental units where notifications need to go to another location. Mounting brackets are included for a wall mount. Pedestals are available where the wiring is connected through to the tank. It can be ordered as a high- or low-liquid level alarm. **262/567-9030**; www.septronicsinc.com.



PEDESTAL ALARM SYSTEM

The **Observer 100** from **SPI - Septic Products Inc.** is a pedestal alarm system in a watertight, NEMA 3R UV-Protected PVC enclosure rated for outdoor use. Features include a low-profile design, easy-to-access cover, large access port with gas/liquid tight seal for cord connections, 120 VAC alarm with 9 VDC battery backup, alarm horn (85 dB at 10 feet), alarm light, external test/normal/silence switch, auxiliary contacts, a 20-foot mechanical alarm float, and a choice of a 120 VAC or 240 VAC pump power supply receptacle. A cycle counter, elapsed time meter and/or push breaker are optional. **419/282-5933**; **www.septicproducts.com.**



CONTROL PANELS

SEWAGE PUMP PANEL

WS Series simplex and duplex control panels from See Water are advanced pre-engineered systems that meet contractor and end user needs. The panels are equipped with integrated control circuitry, and quality components. Panels are UL listed in the United States and Canada. Models include demand or timed dosing, and are intrinsically safe. 888/733-9283; www.seewaterinc.com.



EASY-TO-INSTALL CONTROL PANEL



EZ Series control panels from SJE-Rhombus combine circuit board technology with easy operation for demand, timed dose and data logging installations. Each panel features a NEMA 4X enclosure, locking latch, red LED alarm beacon on cover, external indicators for control power, alarm power and pump run, external test/silence switch,

digital display, menu buttons, large terminal block, circuit breakers and pump run relay. The digital display features float status, elapsed-time pump run, cycle counter, alarm counts, float-error counts, timer-override count (time-dosed only) and on/off times (time-dosed only). An optional mounting post with removable access door for easy wiring can be mounted directly into the ground, over a 4- by 4-inch post or conduit for quick, easy installation. Data logging models are designed to quickly connect to a PC for system programming, monitoring and reporting. They are UL listed for the U.S. and Canada. 888/342-5753; www.sjerhombus.com.

PUMPS (EFFLUENT/SEWAGE/SUMP/AERATION)

GRINDER PUMP

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



EFFLUENT TURBINE PUMP

Effluent turbine pumps from **Clarus Environmental** are available in capacities from 11 to 85 gpm, with heads up to 500 feet. Pumps range from 1/2 to 3 hp. The 1/2 hp pumps are available in 115 or 230 volts, and are powered by Franklin Electric motors. They feature discharges of 1 1/4 inches for 11, 19 and 27 gpm models, and 2 inches for 35, 55 and 85 gpm models. Starting boxes are not required for pumps 1 1/2 hp and below, but are included with 2 and 3 hp models. They come standard with a 10-inch jacketed cord, but cord lengths up to 100 inches are available. It is recommended that all Clarus pumps are installed in a



filtered STEP vault or in a pump tank receiving filtered effluent from a septic tank filter. **800/928-7867**; www.clarusenvironmental.com.

SUBMERSIBLE CISTERN PUMP



C1 Series stainless steel submersible cistern pumps from Franklin Electric are used in graywater/filtered effluent septic system applications, and pass solids up to 1/8 inch in diameter without impacting pump life. Constructed of a 304 stainless steel motor and outer shell with engineered polymer hydraulics providing corrosion resistance and abrasive handling, features include a thermoplastic discharge head to avoid breakage during installation and operation, and a removable 5-inch-wide base for secure and reliable mounting. The motor lead connection is protected with a rubber boot and secured with a stainless steel strain relief, and its bottom-suction design allows for maximum fluid drawdown without compromising durability or pump life. Pumps are available with 115- or 230-volt, 1/2 hp singlephase motor, in flow ratings of 10, 20 and 30 gpm, and a maximum shut-off pressure of more than 100 psi. 800/269-0063; www.franklin-electric.com.

HYDRAULIC SUBMERSIBLE SHREDDER PUMP

The **S4SHR** 4-inch hydraulic submersible shredder pump from **Hydra-Tech Pumps** is designed to continuously rip and shear solids with a 360-degree shredding action. Its carbide-tipped impeller and hardened macerator suction plate produce a violent shredding action that keeps the discharge open. A guide rail assembly is available for stationary applications. Combined with Hydra-Tech HT15 to HT35 power units, the pump is capable of flows up to 810 gpm. The safe and variable-speed hydraulic drive can be used where electric power is hazardous or impractical. **570/645-3779**; www.hydra-tech.com.

(continued)



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Santa Ana

Tom's Truck Center 888-366-7857 (f) 714-560-0742 www.newhinotrucks.com sales@newhinotrucks.com

DELAWARE New Castle

Bentley Truck Services 302-328-4600 (f) 302-328-4601 www.bentleytruckservices.com

Fort Pierce Hino of Fort Pierce 772-409-1800 (f) 772-409-1805 www.kenworthsf.com info@kenworthsf.com

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PRESSURIZED GRINDING SYSTEM

The **InviziQ pressure sewer system** uses grinding and pumping to move sewage efficiently to treatment facilities regardless of the terrain, slope, environmental sensitivity or topography. It offers a dry-well design and clean access to the system motor and other working parts. Network monitoring and control is built in. **513/226-6961**; **www.inviziq.com.**

RESIDENTIAL GRINDER PUMP

The **ProVore** grinder pump from **Liberty Pumps** is designed for use in residential applications where the addition of a bathroom or other fixtures below sewer lines requires pumping. It features the same V-Slicecutter technology utilized in Omnivore Series 2 hp grinder pumps. Powered by a 1 hp motor, it is designed to operate on a standard 115- or 230-volt circuit requiring a 20-amp breaker. No special wiring is needed. Compact factory-assembled systems are available in both simplex and duplex versions. **800/543-2550**; www.libertypumps.com.





PUMP EXERCISER

The Exerciser from Motor Protection Electronics is designed to exercise a sump or sewage pump that may sit dormant for extended periods of time. It will energize the pump for approximately three seconds, every seven days, as well as run the pump whenever the float switch closes for normal pump operation. It detects anything that would keep the pump from turning freely, and monitors both the motor in-rush current and the motor run current. When a fault is detected, it turns off the sump pump, flashes

the Run/Fault LED and closes the alarm relay contact. It can be used with piggyback pumps. **407/299-3825**; **www.mpelectronics.com.**

SUBMERSIBLE AERATOR

The MAXAIR500 submersible aerator from Septic Services features corrosion-resistant stainless steel legs with thick rubber feet to provide added stability. A continuous-duty maintenance-free motor is thermally protected in a fully enclosed stainless steel and powder-coated outer shell. An integrated high-impact plastic handle built into the top of the unit provides easier installation into the tank. The unit is prewired with a 15-foot power cord to easily connect to an existing electrical connection at the tank. 800/536-5564; www.septicserv.com/store.



(continued)

CASE STUDIES

VENT FILTER ELIMINATES SEPTIC ODORS

Problem: After installing a new septic system, a homeowner in Lake Mohawk, N.J., complained of odors in his yard. The contractor installed residential vent odor filters on the tank vent on the roof vents. The filters improved but did not eliminate the problem. The contractor reviewed the problem with Simple Solutions and determined that the problem was due to tank vent airflow exceeding the typical levels. The home is built into the top of a hill, and the holding tank is located

at the bottom of the hill. The discharge pipe is approximately 75 feet long and drops approximately 15 feet. The modules are located on the side of the house above the holding tank. Water was running into the tank either from one of the home appliances, or from feed lines when the discharge pumps were turned off.

Solution: Simple Solutions Distributing recommended the contractor replace the vent filter on the discharge tank with a larger solar-powered **Super Wolverine** vent filter. The Super Wolverine can eliminate odorous airflows up to 10 cfm, and the solar fan actively vents the tank, reducing accumulation of sewer gas.



Result: The odor problem was eliminated and the customer can enjoy his lake home without nuisance odors. **866/667-8465**; **www.industrialodorcontrol.com.**

BIOFILTER SYSTEM INSTALLED IN ENVIRONMENTALLY SENSITIVE PARK AREA

Problem: The White Lake Campground located in Manitoba, Canada's Whiteshell Provincial Park required a new wastewater treatment system to replace its temporary holding tanks and ongoing hauling costs. A permanent and sustainable solution for wastewater management was essential for this environmentally sensitive area.

Solution: J.R. Cousin Consultants prepared the wastewater treatment design. The 4,919 gpd system consists of pretreatment using D & L Concrete and Fibreglass Products belowground fiberglass oil/grease, septic, and balancing tanks, a



Waterloo Biofilter Systems biological filtration treatment unit, followed by UV disinfection to produce high-quality effluent that is discharged to a Waterloo Biofilter shallow area bed. The treatment system is equipped with remote monitoring and control for advanced operation and maintenance.

Result: This system consistently meets the effluent objectives for CBOD/TSS (10 mg/L), ammonia-nitrogen (5 mg/L), and fecal and total coliforms (500 and 1500 cfu/100 mL), despite anomalously high flows during early operation. J.R. Cousin won the 2011 Environmental Award of Excellence given by the Manitoba Association of Consulting Engineering Companies. **519/856-0757**; **www.waterloo-biofilter.com.**

In a crowd of generic portable restrooms Five Peaks stands out.

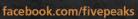
Tough AND attractive? YOU BET and at a great price. All of our portable restrooms include standard features such as hand sanitizer dispenser, oversized stainless steel mirror, corner shelves, utility hook, hover handle, three-roll paper holder, gender sign and exterior door hasp. Call Five Peaks today for details.



To place an order or for more information please contact us:

fivepeaks.net | info@fivepeaks.net | Follow us on facebook 📑 facebook.com/fivepeaks







PUMPS (EFFLUENT/SEWAGE/SUMP/AERATION)

DURABLE GRINDER PUMP

MVP Series grinder pumps from Weber Industries - Webtrol Pumps are constructed from type 304 stainless steel and cast iron. The hardened, anti-wear grinding ring and cutter and recessed, cast-iron vortex impeller are designed to provide years of trouble-free service. This series features double mechanical seals, as well as potted epoxy cord seals, to prevent water intrusion into the motor, extending the life of the pump. They are available in 1 and 2 hp, with up to 100 feet TDH. 800/769-7867; www.webtrol.com.



DRAINFIELD MEDIA

BIOFILTRATION SYSTEM

Compact Monafil from **Anua** is a zero-energy biofiltration system utilizing specialized media for removing odors, VOCs, sulfur and nitrogen-based



compounds. The properties of the granular high-density peat media have proven to be a key factor in achieving high-performance removal and extended media life. It also uses recycled shell-based media to maintain

a neutral ph within the prepackaged biofilter. The

peat and shells ensure optimal odor control while simplifying operation and enhancing reliability. The technology has been used successfully for more than 20 years in odor-control applications. **800/787-2356**; www.anua-us.com.

BACTERIA/CHEMICALS - SEPTIC

BACTERIAL SEPTIC SYSTEM MAINTENANCE

ECO SEPT septic system maintenance from **Bionetix International** contains several strains of aerobic and facultative anaerobic bacteria and bacterial enzymes. Each strain



is specialized in degrading various organic materials comprised of proteins, fats and carbohydrates found in septic systems. Biological nutrients and stimulants such as vital minerals and vitamins are inserted to increase the livelihood of the existing ecosystem. The use of weed killers, bleaches and antimicrobials reduce the biomass in the septic system. The product will maintain a high microbiological community and increase biodegradation efficiency of organic material such as toilet paper, oils, fats, greases and other organic waste. This will decrease pumping frequencies and keep the leaching field clear. It can be put down any drain that leads to the septic system, and will help maintain free-flowing drains as the bacteria adhere to the drain walls. 514/457-2914; www.bionetix-international.com.

SEPTIC SYSTEM TREATMENT

Bio-Tab from **Century Chemical Corp.** is a highly concentrated tablet of bacteria (both aerobic and anaerobic) and enzymes that acts as a biological activator for septic tanks. The combination of tablet form and technologically advanced chemistry assures consistent product performance and dosage. The concentrated time-release tablets



allow homeowners to easily treat septic systems without the inconvenience of messy liquids or dusty powders. When added to the septic system, the tablet sinks to the bottom of the tank where there's little or no oxygen. Here, the bacteria solubilize solids and sludge. The liquid then passes into the drainfield to be absorbed into the ground. Liquid waste is exposed to air, where aerobic bacteria continues the breakdown process. This allows the natural filter action of surrounding ground to continue and absorb and purify waste. 800/348-3505; www.centurychemical.com.

SEPTIC TANK BACTERIA TREATMENT



Chempace Corporation's bioForce is a septic tank bacteria treatment that breaks down organic waste and grease to promote proper system function and eliminate odor. Bacteria strains are highly specialized to digest fats,

oil, protein, starch and carbohydrates. As bacteria feed, they grow and reproduce, continuing to break waste down into harmless carbon dioxide and water. Factors such as overuse of disinfectants, bleach, detergents and antibacterial products kill the microorganisms that work to keep septic systems running properly. Regular applications replenish these microorganisms and allow natural activity to continue. It is environmentally safe, contains no corrosive chemicals, caustic or acids, and is packaged in premeasured water-soluble pouches. **800/423-5350; www.chempace.com.**

SEPTIC TREATMENT AND CLEANER

Drainbo septic treatment and cleaner keeps septic systems clean and clear with three paths of action. First it treats all drainlines in the home. Next it increases the digestion in the septic tank through a multi-strain biological formula. Finally it guards against system failure by digesting and removing leachfield sludge deposits that impede the ability of the liquid to disperse and evaporate. It is a USDA-Certified Biobased Product. Private labeling is available. **877/372-4626**; **www.drainbo.com.**



(continued)





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BACTERIA/CHEMICALS - SEPTIC

LIQUID LIVE BACTERIA

PRO-PUMP/HC liquid live bacteria from Ecological Laboratories are a blend of microorganisms selected for broad-spectrum application in industrial and wastewater treatment. The product contains more than 30 strains of bacteria to resolve problems in grease traps. It results in the rapid breakdown and removal of fats, oils and greases that build up in drainlines and grease traps. The blend is a unique mixture of live bacteria, not spores. Regu-



lar treatment reduces trap surface solids, making pumpouts more cost-effective. **800/326-7867**; www.propump.com.

SEPTIC SYSTEM TREATMENT

NuTank septic system treatment from **J & J Chemical Co.** is de-

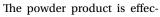
signed to replenish the enzymes in a septic tank. Using concentrations of billions of specific bacteria, it is engineered to break down solids, scum and sludge for a healthier septic system. Using

it monthly will help reduce the potential for backup and costly repairs such as drainfield damage. It boosts the progression of aerobic digestion, even battling harsh detergents and antibacterial products. Once a month, simply toss one self-dissolving packet into a drain or toilet and wash or flush down. It is safe for plumbing and environmentally friendly. It comes prepackaged in 12 packets per jar and 12 jars per case. Company contact information can be added to each jar. 800/345-3303; www.jjchem.com.

PREMEASURED SEPTIC TREAT-MENT PACKETS

Premeasured, septic treatment packets from Lenzyme/Trap-Cleer are lightweight, compact for distributing and easy for homeowners to use.

Product directions are in English and Spanish.



tive in cold weather, has a five-year shelf life, and a treatment reminder calendar is included in every box, as are reorder cards for contractors and educational septic and drain brochures. The box is designed for simple feed-out of packets. **800/223-3083**; www.lenzyme.com.

DISINFECTION TABLETS

Bio-Sanitizer disinfecting tablets from **Norweco** are formulated to provide safe, efficient and reliable disinfection of water or wastewater flows. Manufactured from pure calcium hypochlorite, they dissolve slowly and evenly, providing effective and economical bacteria killing power. Each tablet contains a minimum of 70 percent available chlorine to ensure maximum



effectiveness. They are a dependable, long-term

source of chlorine that automatically adjusts chemical application to rate of flow. Recommended for use in any approved, gravity-flow tablet dispenser, they provide positive disinfection and inhibit bacteria regrowth. Registered with the United States Environmental Protection Agency, Canada's Ministry of the Environment and a number of state and provincial authorities, they are packaged in 10-, 25-, 45- and 100-pound containers. **800/667-9326**; www.norweco.com.

Find Owners The Country of the Coun

LIVE BACTERIA

Liquid BioOne from One Biotechnology contains live microorganisms selected specifically for their ability to thrive in a septic system environment. This performance-ready product does not contain added enzymes or emulsifiers that only serve to liquefy waste. The beneficial bacteria eat and digest septic system waste without harmful byproducts. When used in preventive maintenance, it can help prevent backups and drainfield flooding. It should be added immediately after pumping. 800/951-4246; www.onebiotechnology.com.

REJUVENATION SYSTEMS

DRAINFIELD RESTORATIVE

Septic-Scrub from **Arcan Enterprises** is a chemical treatment that oxidizes sulfides and releases oxygen into the drainfield. It is designed to remove sludge in the biomat, restoring drainage to a system that has slowed down. It allows septic service contractors to offer an add-on drainfield cleaning service. **888/352-7226; www.arcan.com.**





REJUVENATION SYSTEMS

BIOREMEDIATION RESTORATIVE

AfterShock soil absorption restorative from Cape Cod Biochemical Co. restores drainage to clogged and sluggish drainfields, prevents backups and eliminates odors. It contains multi-strain bacillus spore-bearing bacteria, as well as a bacteria-friendly, time-release oxygen source. It restores

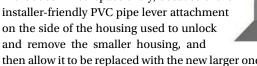


drainage by digesting solid material that clogs soil absorption areas. The oxidizer accelerates bacterial activity for an extended period, promoting unusually fast biological activity of the organisms. Additionally, the oxidizer helps to degrade sulfides in the biomat to further promote drainage. The bacteria are naturally occurring, USDA-approved, laboratory-enhanced, primarily aerobic organisms. The product is nonhazardous, nontoxic, contains no EPA priority pollutants and is safe for the environment. Its bacteria and oxidizer can be applied at the same time, eliminating the need to keep the system exposed for repeated site visits. 800/343-8007; www.septiconline.com.

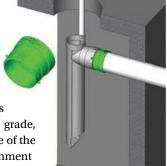
FILTERS

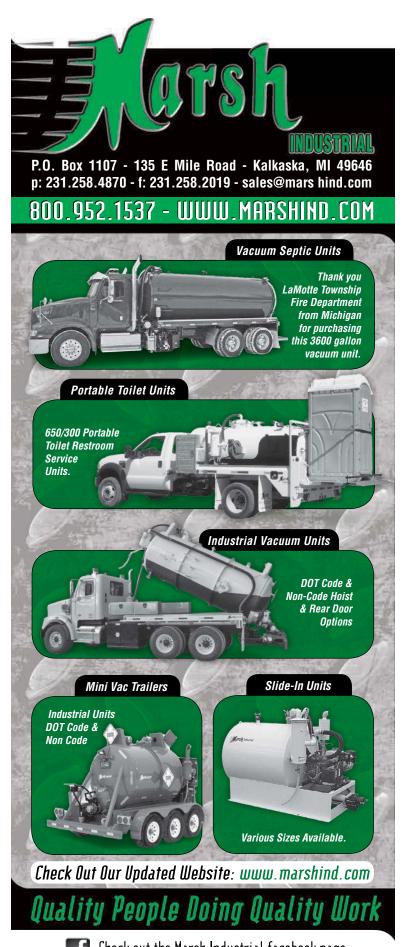
VENTIL ATION DEVICE

The UNI-Tee Baffle from Bear Onsite upgrades septic system effluent filters using a UNI-Coupler made from builder-grade 4-inch screens. This is accomplished by disengaging the locking mechanism, removing the 4-inch screen and housing, then locking on any of the largersized effluent filters currently in the marketplace. The design makes this upgrade possible from finished grade, without confined-space entry, because of the on the side of the housing used to unlock



then allow it to be replaced with the new larger one, even when the access is through several risers. It can also be packaged with one of two outlet screens or one of two outlet "true filters" that are designed to provide drainfield protection and ensure proper ventilation of the septic system. 877/653-4583; www.bearonsite.com





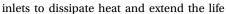
lacksquare Check out the Marsh Industrial facebook page.

See the progress of some of our units in the making.

FILTERS

VENTED PUMP ENCLOSURE

The **High Vent Air Pump Enclosure** from **Polylok** measures 24 inches long by 15 inches high, and utilizes an air vent (independently tested to 330 cfm) on a 24-inch flat cover with mesh air





of the air pumps. Its green-colored UV-protected weather-resistant enclosure blends with the environment and can be used above or below grade on new or retrofit applications. Accessories include risers to adjust height to fit most applications, and a full line of air pumps ranging from 1.41 to 5.29 cfm. 877/765-9565; www.polylok.com.

ANAEROBIC/AEROBIC FILTER SYSTEM

STAAR Systems from SeptiTech treat high organic loads that integrate with other technologies and accessories. Smart controllers recognize situations dealing with peak, low, intermittent or no-flow conditions to either slow, stop or restart the system and include many additional features to

further enhance quality and dependability. A dual-purpose recirculation pump sprays wastewater over unsaturated media filter and draws outside air in through use of venturis. The smart biological trickling filter technology also maintains low levels of Nitrate-N. Systems treat 100 to 150,000 gpd with all below-grade components that fit available concrete, plastic or fiberglass tanks. 800/318-7967; www.septitech.com.

PRESSURE FILTER

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

888/999-3290; www.simtechfilter.com. ■



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<u>3" X 20'</u>	<u>3" X 25'</u>	<u>3" X 30'</u>	<u>3" X 33'</u>	BULK 100'
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EPDM SUCTION COUPLED MXF QUICK CONNECT

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\$2.19	\$3.69	\$6.59	\$11.35
\$1.69ft	\$2.89ft	\$4.95ft	\$10.95ft

		*	
<u>3" X 20'</u>	<u>3" X 25'</u>	<u>3" X 30'</u>	<u>3" X 33'</u>
\$87.00	\$99.00	\$115.00	\$125.00
\$82.50	\$98.95	\$124.50	\$126.50

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MEC5000 VACUUM PUMP

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	SHOW PRICE	
Drip Lube	\$1,550.00	
Auto Lube	\$1,650.00	
Muffler Pack	\$2,575.00	
Max Pack \$2,995.00		
FOR 1 500 - 5 000+ GALTANK		

DRIPOR AUTO 250 CFM LUBE MEC6500 VACUUM PUMP . 3" Connections

• 3" Connections		
	SHOW PRICE	
Drip Lube	\$1,675.00	
Auto Lube	\$1,775.00	
Muffler Pack	\$2,725.00	
Max Pack	\$2,925.00	

POR 1,500 – 5,000+ GAL TANK DRIP 285 CFM OR AUTO LUBE MEC8000 VACUUM

• 3" Connections

PUMP

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Drip Lube	\$1,820.00
Auto Lube	\$1,920.00
Muffler Pack	\$2,850.00
Max Pack	\$3,275.00

FOR 2,500 – 6,000+ GAL TANK

MEC9000 VACUUM PUMP

• 3" Connections

	SHOW PRICE
Auto Lube	\$2,495.00
Muffler Pack	\$3,450.00
Max Pack	\$4,050.00

FOR 2,500 – 6,000+ GAL TANK 394 CFM

MEC11000 VACUUM PUMP

3" Connections

	SHOW PRICE
Auto Lube	\$2,595.00
Muffler Pack	\$3,550.00
Max Pack	\$4,150.00



PATRIOT 300 VACUUM PUMP

	SHOW PRICE
Auto Lube	\$2,495.00
Muffler Pack	\$3,450.00
Max Pack	\$4.050.00

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ADS adds fourth production line

Advanced Drainage Systems added a fourth manufacturing line to its Saint-Germain-de-Grantham, Quebec, plant to produce large diameter, open-profile pipe from 900 to 1,500 mm. The facility is certified to produce N-12 corrugated HDPE pipe diameter from 100 to 900 mm with minimum pipe stiffness. It also is capable of making the company's SaniTite HP polypropylene pipe.

Wastequip names division presidents, vice president

Wastequip promoted John Defenbaugh to mobile division president. He will be responsible for sales and operation of the Galbreath, Pioneer, Mountain Tarp and Parts Place brands. Shawn King was named president of Wastequip's technical division and will focus on growing market share for compactors and balers. Tim Phanco was named vice president of sales for Toter.

Baldwin Filters names vice presidents

Baldwin Filters promoted Dave Amato to vice president, U.S. and Canada sales, and Andy Sisler to vice president, national account and fleet sales.





Dave Amato

Andy Sisler

Curry Supply adds directors, manager

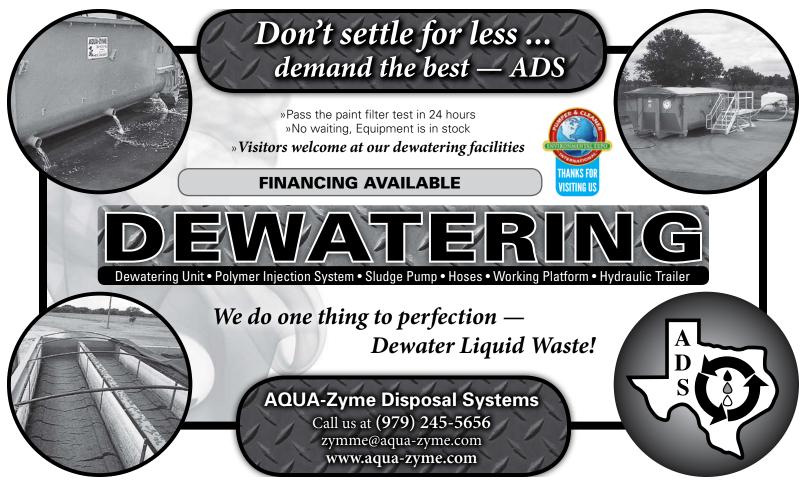
Curry Supply Co. named John Roseberry information technology director, Stephen McConnell quality control manager and ISO controller, and Tom Catalano director of marketing.

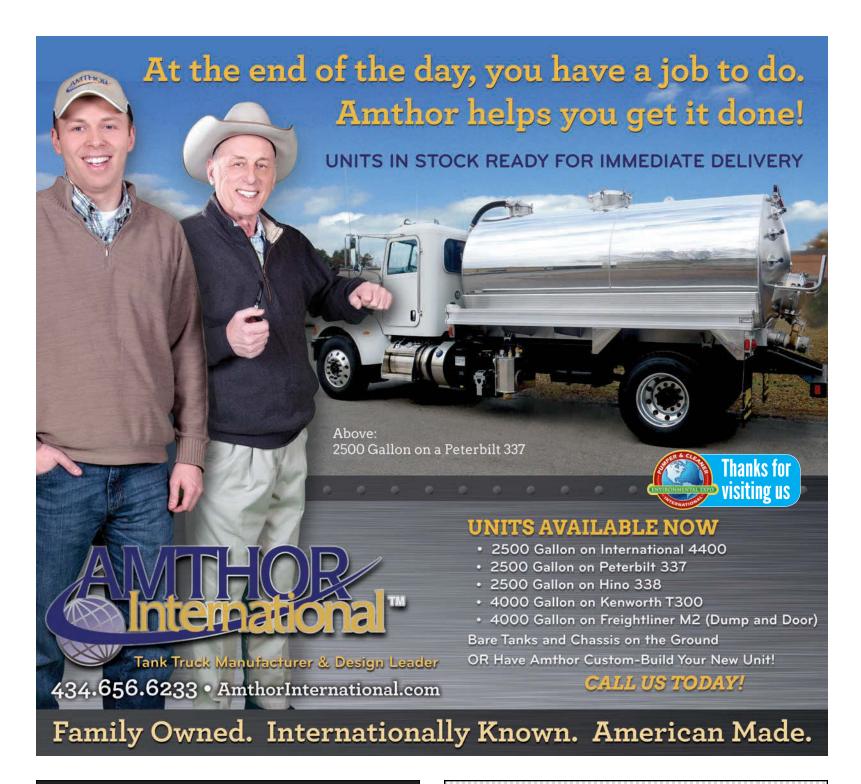
Topp Industries names managers

Topp Industries appointed J.J. Lang to manage its wholesale business across the United States and Canada and named Tim Merkel outside sales manager, responsible for OEM and engineered sales accounts.

Von Schmauder returns to Capital Connection, Doering joins firm

Jeff Von Schmauder, founder and owner of Capital Connection, rejoined the company as president after serving six years in the Air Force as a combat medic. Von Schmauder founded the sanitation and waste management equipment financing company in 1990 and has served on the PSAI board. Jerid Doering also joined the company and is responsible for business development. Headquartered in Washington State, Capital Connection has locations in Boston, Maui and Australia.





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PRODUCT **NEWS**



A new line of pressure distribution valves and valve-assembly packages made by **Quanics Inc.** offers an easier, more cost-effective way to alternately dose from two to six zones in applications that rely on mound, sand filter and advanced treatment-module dosing systems.

The 4000 and 6000 Series of distribution valve packages can alternately distribute effluent to between two to six zones. The 4000 includes a 26-inch-diameter, 12-inch-tall watertight, polyethylene basin with a lid; the 6000 measures 26 inches in diameter and 18 inches tall. The basin is installed with the lid at grade. The 4000 valve bodies are made of ABS polymer; the 6000 valve bodies are made of die-cast metal, says Brian Borders, president of Quanics.

"The product originates from the irrigation industry, where the valves are used to zone out drip-irrigation fields," Borders says. "We took the valves and pre-built them in one assembly that comes plumbed and ready for installation. The other option is electrical valves or multiple pumps, but this is simpler, more economical and easier to install."

The 4000 and 6000 Series are designed to save contractors time spent cutting, fitting and gluing pipes and fittings. With the preassembled units, all a contractor needs to do is glue a supply line to the inlet hub — which is 1 1/4 inches in diameter on the 4000 series and 1 1/2 inches in diameter on the 6000 series — and then glue the ABS polymer valve-outlet pipes to the field lines.

The outlet pipes on the 4000 Series are 1 to 1 1/4 inches in diameter, depending on the number of zones required; on the 6000 Series, outlet pipes are 1 1/2 inches in diameter. Each package also features a ball valve for adjusting flow and quick disconnects for easy valve removal, Borders explains.

Suitable for new installations or retrofits on existing systems, the packages include sections of clear outlet piping from each valve so installers can easily determine if the system is operating correctly. "That's a benefit because clear PVC pipe is not easy to find," Borders notes.

The 4000 operates within a flow range of 10 to 40 gpm and is rated at 25 to 75 psi. The 6000 operates within a flow range of 15 to 150 gpm and is rated at 25 to 150 psi, Borders says.

Insulated packages are available for installations in cooler climates.

877/782-6427; www.quanics.net.

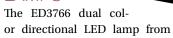


JASON INDUSTRIAL CAM COUPLINGS WITH LOCKING HANDLES

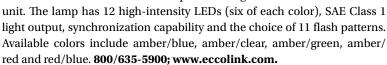
Safety cam couplings with locking handles from Jason Industrial have an aluminum body with 304 stainless steel arms. Sizes range from 1 1/4 to 4 inches and are available in cam and groove types B, C, D and DC. Type C

couplings can be attached to the hose using bands, clamps or Jason Crimp Sleeves. **630/752-0600**; www.jasonindustrial.com.

ECCO DUAL DIRECTIONAL LAMPS



ECCO offers two different color outputs in a single





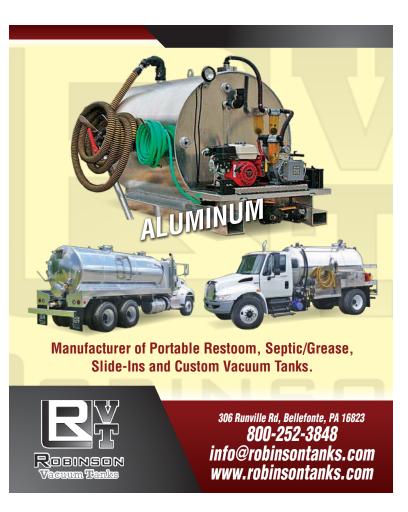
NLB REDUCED-STRESS WATERJET LANCES

NCG-286A high-pressure waterjet lances from NLB Corp. are designed to reduce stress on the inlet hose connection and have a padded shoulder stock to help center the thrust of the water. The lances have an inlet tube with 90-degree bend, supported by a bracket that eliminates bend radius in the hose behind the inlet connection. The series includes lances rated for operating pressures up to 10,000 psi, 15,000 psi, 24,000 psi and 40,000 psi. Brackets and couplings are available to convert older-style NCG-286 lances. 877/652-7796; www.nlbcorp.com.

GENERAL PIPE HAND-HELD DRAIN CLEANER

The D-25 Handy hand-held drain cleaner from General Pipe Cleaners has a plastic container and rugged chuck for maximum performance, flexibility and reliability. Drop-tested fully loaded from 8 feet, the drain cleaner can be used as a hand tool or power tool by removing the turning handle and attaching a 3/8- or 1/2-inch electric drill. Three chuck jaws hold 1/4-, 5/16-and 3/8-inch Flexicore cable. **800/245-6200**; www.drainbrain.com.









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ERGODYNE HEAD PROTECTION

The Skullerz head protection line as well as the Skullerz 8950 bump cap and 8960 bump cap with LED lighting from Ergodyne are designed for applications with overhead hazards but do not require a hard hat. Caps protect



workers from bumps, bruises and cuts. They feature a flanged shell that expands or contracts to fit the worker's head for a secure fit. Thermo-formed foam and a ventilated shell provide optimized breathability. The shell also can be removed for cleaning. 800/225-8238; www.ergodyne.com.



STANLEY VIDMAR 5S CABINETS

5S cabinets from Stanley Vidmar are designed to fulfill lean and Kaizen storage requirements. Features include Plexiglass or solid hinged doors with metal pegboard inserts, heavy-duty lock and difficult to duplicate key system to safely secure valuable items. 800/523-9462; www.stanleyvidmar.com.



The Vacall AllJetVac highdump option for combination sewer cleaners from Gradall Industries enables the operator to raise the debris tank 76 inches above ground level



and shift the tank horizontally 21 inches beyond the rear bumper using a wireless remote. **800/382-8302**; www.vacallindustries.com.



PRESSUREPRO TPMS TIRE PERFORMANCE MONITORING

Commercial tire pressure monitoring systems (TPMS) from Advantage PressurePro, in collaboration with Omnitracs' mobile computing platforms 110 and 200 (MCP110

and MCP200) provides tire performance information to an in-cab display, enabling fleets to extend tire life, reduce expenses and prevent accidents caused by improper tire care. The system provides drivers and office staff with graphical data on tire conditions, including real-time pressure and temperature settings, under- and over-inflation alarms and high-temperature alerts. 816/887-3505; www.pressurepro.us.

TOW-LET PORTABLE RESTROOM TRAILER

The permanently mounted portable restroom trailer from Tow-Let Manufacturing includes a self-contained polyethylene portable restroom with 50-gallon waste tank and 30-gallon freshwater tank for



washdown that can be towed by a vehicle with a 2-inch ball hitch. A 12-volt solar unit powers the washdown pump that charges the hose on a self-retracting reel. The unit also includes a PolyJohn Enterprises single-user hand-wash sink, LED interior lighting with control panel and storage for supplies. Larger tanks, including 300-gallon waste for long-term placement, are available. Units can be customized to match company colors. Larger 5- by 5-foot, single-step entry and twin units are available. **712/623-4007**; www.tow-let.com.



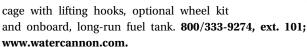
STELLAR INDUSTRIES SLIDING-JOB HOOKLIFT

The Slider20-S hooklift from Stellar Industries has a maximum dump angle of 60 degrees and can handle container variations of 10 to

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 - 33,000 GVW
 - Rear differential locker 6 Speed transmission
- 2,500 gallon steel septic truck · Jurop RV 360 vacuum system
 - One tool box
- Two work lights (at rear) · Heavy duty bumper
- Cummins 240 HP engine
- Allison 2500 6-speed RDS automatic Air brakes
- 25,999 GVWR
- 2,000 gallon (1,500 waste/500 fresh) Robinson Vacuum Tank
 - DC-10 Fresh Water Pump
- Fruitland RCF 250 Eliminator Pack Vacuum Pump System
- · Large waterproof cabinet each side · Heavy duty toilet carrier with trailer hitch, 7 pin trailer connection, and winch
 - for securing toilets • Two work lights (at rear)

• 6.7 liter 300 HP engine

- 6-speed automatic Transmission • 19,500 GVWR
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- Masport HXL4V Vacuum Pump System
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- hitch, 7 pin trailer connection, and winch for securing toilets Two work lights (at rear)

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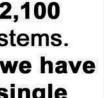
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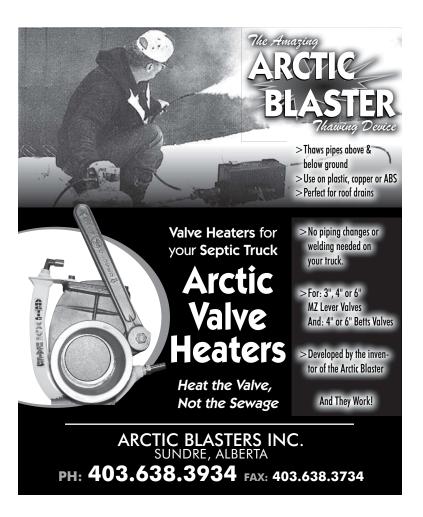
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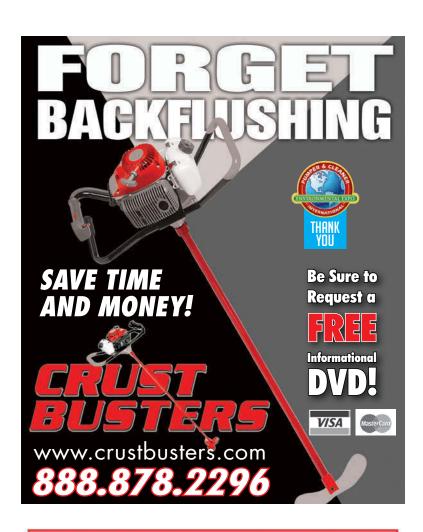


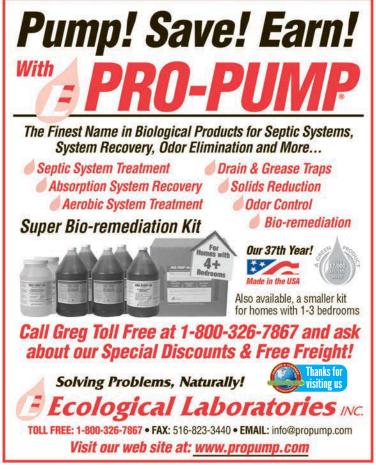
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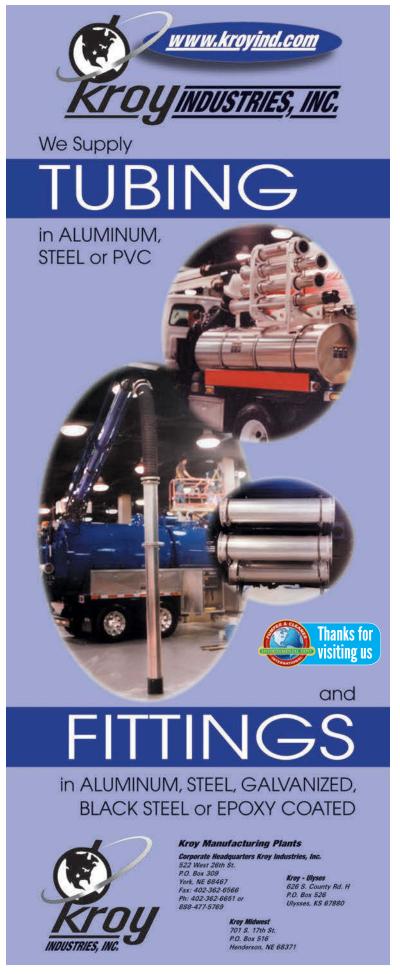


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Kentucky Onsite Wastewater Association www.kentuckyonsite.org; 855/818-5692

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

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

Oregon

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

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Pennsylvania Association of Sewage Enforcement Officers

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

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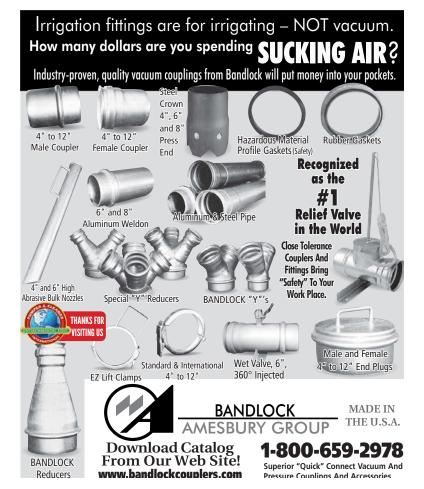
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Annual Operation & Maintenance Level I Evelyn Rosefield at (530) 513-6658, evelyn@cowa.org

April 9-10, 2014 - Alameda, CA

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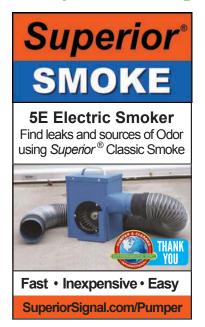
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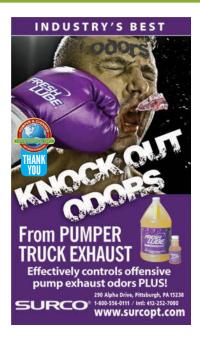
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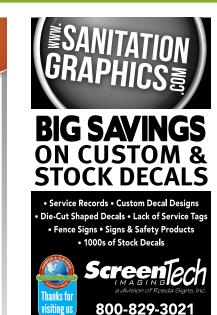






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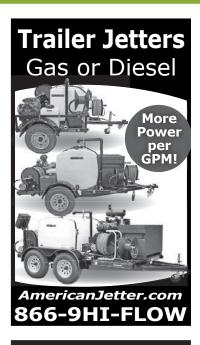
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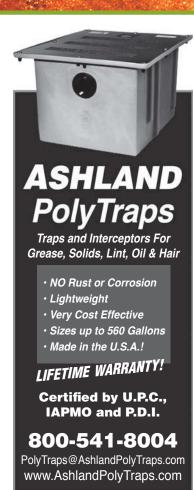


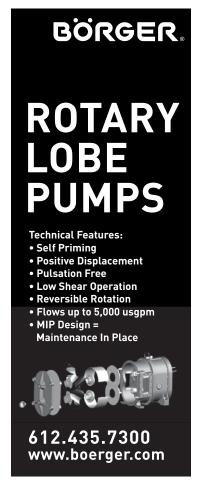




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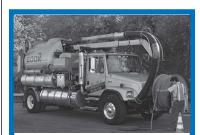
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MISCELLANEOUS

Lakeside RAPTOR® Grease Receiving Station Model 40FS RAPTOR® Fine Screen with cylindrical basket, raking mechanism, screenings trough, integral screw conveyor and compression chamber, stainless steel construction. Continuous trash bagger attachment. Local hauler (RACS) station with NEMA 4X stainless steel control panel, Allen-Bradley Micrologix 1100 PLC with Ethernet port, Allen- Bradley HMI with 6.5inch display. 2 Yokogawa 4" diameter Magnetic flow meters. New condition. One of two identical units delivered in 2013, the other has worked flawlessly screening trash from grease trap waste. This unit was never installed. Paid \$146,804, selling for \$109,000. Location Charlotte, NC. Contact Dave at 704-497-0445.

PORTABLE RESTROOMS

Up to 400 used teal Satellite units, in excellent condition, in Central Florida, \$200/each. Minimum purchase 50 units. 352-860-0195. (PBM)

PORTABLE RESTROOM TRAILERS

For Sale: 4 - NuConcept 2-stall trailers. 2 restrooms, solar powered or 110v heating and cooling. City water hookup, mirrors, lighting, Switchmat activation, in-use light. 651-429-3781

Olympian restroom trailers, heat, a/c, hot water, interior and exterior lighting. Several sizes, call 845-883-9538. (P04)

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

PORTABLE RESTROOM TRUCKS



Complete Portable Toilet service truck mount units (turn-kev), mounted on your truck or ours. Tool boxes, dual work stations, dc10 washdown pump, reversible vacuum pump, hose reel, set up complete, toilet racks available. 1100 waste/400 fresh: \$19,000, 1700 waste/600 fresh: \$20,500. Any custom options or sizes available!

> **TexLa Services** 936-641-3938 www.texlaservices.com

2008 Dodge 5500: Auto, diesel. Purchased new from Satellite, January 2010. 650 waste, 300 fresh, 2-unit carrier. \$34,000. 845-883-5563

2012 International TerraStar: 66,000 miles, Crescent tank 750/350; 2007 Chevy 6500: 105,000 miles, Crescent tank 950/350; 2007 GMC TopKick: 135,000 miles, Flat tank 1,000/350; 2001 Ford 350 SuperDuty: 235,000 miles 300/150. All trucks ready for work. Call for pricing. Jeff 585-303-6155. Cash only. (P04)



2004 Sterling Acterra with Coleman stainless steel tank. Mercedes engine, Allison automatic. Truck has 298k on it but runs and drives nice. \$19,500

> 330-733-9000, OH patflynn2@aol.com P03



1997 International 4600 Toilet Truck: 466 diesel, 5-speed, 278,000 miles. Carries 6 toilets, 300 gallons fresh water and 600 waste. Good tires, good DOT, fresh motor. Runs and drives great. ...\$12,500

517-546-2268



2004 International 4200 FlatVAC portable toilet & service truck with Amthor 1,040(700/340)-gallon tank. 16' stake bed truck with removable side racks. V-8 diesel with less than 10k miles on new engine. Masport HXL4V with service & toolboxes on both sides. Lift gate, DC-10 water pump. \$47,900 OBO

Call Mike 217-344-5004, IL PO3

Pre-owned Coleman 2-compartment, 1,800 U.S. gallon, 1,000 waste / 800 water stainless steel, portable toilet vacuum tank. Mounted on 2005 International 4300 cab and chassis with a Masport HXL 3V vacuum pump. (Stock# 8085V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648) (PBM)

2005 Ford F350, diesel, Satellite unit, 400 waste, 200 water, M2 Masport, www. pumpertrucksales.com. Call JR. @ 720-253-8014, CO. \$14,000 (PBM)

2000 Int 4700 - \$17,500; 2002 Int 4300 -\$23,500; 2006 Int 4300 - \$39,500; Roll-off -\$23,500. Restrooms - \$150. 256-757-9900 or www.pbsos.com. (PBM)



1997 International 4900 portable toilet service truck for sale. 500cfm pump, 416,738km, 760-gallon Imperial waste tank / 560-gallon Imperial water tank. \$21,000 CAD. Located in Montreal, Canada, Call or email Patrick Kelly:

> 514-453-2279 patrick.kellv@sanivac.ca www.sanivac.ca PU3

2002 Chevy C6500, Abernethy 1,500-gallon tank - 1250/250 split, Masport 230cfm pump, toilet rack with hitch. 210hp CAT 610TQ, air brakes, auto, 25,950 GVW, 147K. \$27,500 OBO, 740-357-1208 (P04)

PORTABLE SINKS

Handwashing Stations: Only 36 left. PolyJohn "Handstand 2" units. Excellent condition. used less than 2 years. Brought them in for a customer that no longer requires them, \$250 each OBO. Call Mike 217-344-5004 (P03)

POSITIONS AVAILABLE

GapVax, Inc., a nationally recognized manufacturing business, is seeking a talented, highly motivated individual to fill a full-time Sales Position in the Midwest (lowa based preferred) region. GapVax is the leading manufacturer of industrial and municipal vacuum units and hydroexcavation units in the United States. We provide the most reliable, comprehensive, and efficient mobile vacuum units in the industrial and municipal markets. Specifications of the position are listed on our website, www.gapvax. com, click on the Now Hiring link in the left hand column. Send resumes to Lthomas@ gapyax.com or 575 Central Avenue. Johnstown, PA 15902. (CPMGBM)

USG is a growing Pennsylvania-based company seeking CCTV, grouting, jet/vac, CIPP, HDD, lateral rehab and manhole rehabilitation technicians and foremen. Applicants should have a minimum of 1 year experience in the industry. We are an EOE offering great pay, relocation subsidy and steady work. Send resumes to HR@usginc.net. Fax: 717-737-6093 or USG HR Department; 1304 Slate Hill Road, Camp Hill, PA 17011 (P04)

Zeiter's Septics Unlimited. Inc is seeking an experienced technician in the following areas: Septic Installation & repairs, ietting & camera experience. CDL license required for Vacuum truck tank cleaning. Location Morris Illinois. 815-693-2929 or david@zeitersseptics.com (P04)

PUMPS

Two (2) 4" Thompson Double Diaphragm Pumps: 5hp electric motor, single phase. Cost new - \$9,000 each. Will sell both for \$5,000 or sell individually for \$3,000 each. Pictures are available upon request. Please call 910-738-5311.

PUMPS-VACUUM

Fruitland RCF 500 vacuum pump - serial# 509462LUFA date 1-07. Totally rebuilt- zero hours. All work done by RA Ross. Have all paper work. \$3,500. 513-200-1821 (P04)

New, used and rebuilt vacuum pumps and tanks. Most major brands. Parts in stock. Quick turnaround. 20 years experience. 866-735-7327 (P0315)

Buy & Sell all makes and models, new & used vacuum pumps & high pressure water pumps. and good used replacement parts. Call for an inventory sheet and save. www.Vacuum Salesinc.com, (888)VAC-UNIT (822-8648) (PBM)

PUMPS-WATER

New, never used Myers D65-20 water pump. List price: \$17,992. Sell for \$8,850. New Rockford power take-off part number 4-11182 - \$700. 714-381-4141.

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. vsirentalsllc.com (PBM)

SEPTIC TRUCKS

Retiring after 30 years. Three (3) nice Transway built vacuum trucks. Original owner. 1. 1999 International: 2,500 gallon, two axle, low miles. \$39,000. 2. 2000 SL80: 3,600 gallon, three axle. \$45,000. 3. 2003 SL80: 3,600 gallon, three axle. \$49,000. Clean, well-maintained California trucks. Call for photos and details, 949-701-2687 or 949-307-0933 (P03)

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SEPTIC TRUCKS



2001 Mack R-686 Model 4200 with 2,500 psi jetter, 468hp, 215,000 miles, 500cfm, Fruitland pump, 20,000 pusher, Very good condition, economy forces me to let it go. One owner, meticulously maintained. All service records from day one will be provided. Will send photos upon request.\$75,000 OBO

860-664-9692, CT



2004 International 7400: This truck is like new. Only 139,000 miles. Truck was completed in 2013. Engine is a DT530. Truck has a/c. cruise, tilt, air-ride cab. new paint, 315 tires all around, new pump vanes, new manways, 3-inch inlet and two 4-inch discharges. \$75,000

912-223-0700, GA



Series, 6-speed automatic, 2,500-gallon tank, 400 Masport, many extras!

> **Ron Evans Enterprises** 800-537-9528

P04

1993 International 4900: DT466, 10-spd Fuller Road Ranger, 123,650 original miles. large toolbox, 2,000-gallon tank, 3" and 4" intakes, 6" dump, \$23,500, 831-440-0168 or admin@a-1septicserviceinc.com. (PBM)

1979 Ford L8000 vac truck, 3406 CAT, 400hp, 14-speed Spicer, 302k miles, 20k on rebuilt motor. Tandem axle, 3,100-gallon tank, MEC 8000 vac pump, 6' dump valve, 4' suction valve. Everything works, will need batteries. \$15,000. For any questions call Wade at 920-573-3646. Thanks for looking! (P03)



2006 Freightliner M2: 332k, 250hp C7 CAT, 6-speed manual, PW, PDL, Air Ride, 2,000-gallon waste, 300-gallon fresh, 400cfm liquid-cooled Masport pump, 4,000psi 4gpm. 200' on-board jetter, LED light package, brand new hoses, ready to work. Quarryville PA \$34,000

> 717-529-0931. PA P03



2007 Freightliner M2-112: 450hp Mercedes, 211,000 miles. 8LL transmission, 5,000-gallon carbon tank. De-Mag 150 water-cooled vacuum pump. Centrifugal pump w/irrigation gun. Will deduct w/o pump and gun. One owner. \$110,000

> stevebyrne@bytecinc.net 608-328-8200, WI

P03



2007 IHC 4400: with new 2,500-gallon Imperial tank. Masport 350cfm, DT466 245hp, 33,000# GVW, air brakes. Serviced and DOT. Stock# 365749.

> 888-961-4185 www.truckcountry.com P03

1984 International DT466: New hydraulics, brakes, paint and alternator. DOT inspected. Ready to work. 1,500-gallon tank, non CDL. Email winterseptic@jamadots.com for pictures. Asking \$17,000. Phone 906-492-3758

1998 International 4700: DT466. Allison. 258,000 miles. Mechanically very good. 2002 Lely 2,300 gallon and Powerflo PF540. \$22,500. foresthillfarm@yahoo.com Randy 360-301-0249 (P03)



2009 Peterbilt 340 Paccar: 330hp engine. Fuller 10-speed transmission, 220,000 miles, aluminum wheels, 4,300-gallon tank with Jurop RV360 pump, 4,000 psi jetter system with 200' jetter hose.\$89,500

318-510-7408, LA



Restored 1962 Mack B61 pump truck. 2,500-gallon tank, new Challenger pump, air-ride suspension, automatic Allison transmission. \$30,000. Call Joe with Brantley Septic and Drain at:

928-425-8430, AZ



2003 GMC 7500: CAT engine, automatic transmission. 280,000 miles. 2,500-gallon tank and pump installed December 2013. Hydraulic-driven PTO with Jurop pump. \$45,000

256-295-3945, AL

1997 Freightliner FL70: 210hp Cummins diesel, 6-speed manual transmission. Heat, a/c. New Pikrite tank - one-year old. 400cfm pump, 2,200 gallons. Custom large toolbox will hold large snake. Spare motor included in sale. \$25,000 OBO. Call Vinny 845-674-7790

2001 International S4900 septic tank vacuum truck, 225hp, 193,000 miles, Jurop pump. 2,650-gallon tank. Cold A/C, good tires, 6 speed, & cruise control. \$37,500. 850-826-2982

2000 Sterling with 285 Cummins: Preemissions, tri-axle with tag, all new tires, 4.400-gallon T-Line tank, MEC 8000 pump. new paint, air valve, all new brakes, bushings, and leaf springs, nice truck. \$39,900. 715-923-4127.



2007 Freightliner M2 with new 2,500gallon Imperial tank, Masport 350cfm, 260hp, Allison automatic, air ride cab & suspension, ATC traction control. Stock# 373243.

> 888-961-4185 www.truckcountry.com



1990 Freightliner: 3,600-gallon steel tank, CAT 350hp engine. 15-speed Eaton transmission. Jurop 260 pump. 57,000 GVW. Strong engine, truck runs good. 280k miles. \$16,500

> Jason 508-326-8416, MA jasonh@pumperguys.com



2013 Kenworth T-800: 5,000-gallon tri-axle. D-Mag pump. Loaded. Very nice, just too big for us. \$155,000 Firm. No trades or low offers. Located in northwest Florida.

850-902-9044. FL

1999 Ford F550 septic truck 2WD w/7.3 Powerstroke diesel. Automatic transmission, 108k miles. 19,000GVW. Power everything (mirrors, seats, windows), heat, a/c. 1.000-gallon Lelv tank set up for septic pumping - not portable toilets. Will hold 1,000 gallons and has vacuum/pressure Masport pump powered by Honda motor w/electric start. Has two 3-inch valves. Perfect for a son/daughter in the business, someone just getting their license or for someone without a CDL. Truck is in great shape. Asking \$27,500 OBO. Call Vinny 845-674-7790 (P03)

P03

SEPTIC TRUCKS



1989 Kenworth T600: 435 CAT new, rebuilt. 3,500-gallon Scorpion-lined Kennedy tank. Tandem air-ride, jake brake, 367 Challenger Max-Pak, Right Angle Drive, sight tube/bubble glasses, jetter new. Used daily 100,000 mile warranty. Great shape. 20 miles east Indianapolis, Indiana. \$46,000

317-627-7033, IN



2002 International 4900 pump truck. 182,000 miles. Spicer 9-speed transmission. 3,300-gallon Heil aluminum tank. 300-gallon freshwater tank \$44,500

Call 815-693-0502. IL



2003 Mack CV713 Granite vacuum truck: 400hp Mack engine w/engine brake: Eaton Fuller 8LL trans: double frame: Mack 44.000 Camelback suspension; 348,000 miles; Heil aluminum 4,600-gallon two-compartment tank -1,000 gallon water/3,600 gallon waste; Drum S440 vacuum pump; Dayton 4,000psi pressure pump. Very clean inside and out. \$68,000

> Robert 443-553-1517, MD robert@rjhmgt.com P03

1987 Kenworth T600A: CW CAT 6-cylinder. Eaton-Fuller 15-speed, 8-bag A-R suspension. 3,365-gallon vacuum tank, Masport 75 pump. \$31,000. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

2003 International 4300: Allison auto.. 136k miles, new 1.850 gallon steel vac tank, under CDL; work in progress - you choose pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO.



Turn-Key Vacuum Tank Units: 3,600gallon, unit mounted on your truck or ours; \$20,000. 3,200-gallon truck units; 19,500. 2,500-gallon truck units; \$18,000. 2,000-gallon truck units; \$17,000. 1,500-gallon truck units; 16,000.Self-contained vacuum skids, 1,000-gallon; \$10,500, and 1,500-gallon; \$12,500, PortaPotty trucks and any custom options or sizes available!

> **TexLa Services** 936-641-3938 www.texlaservices.com

P03



2008 Sterling LT9500: Mercedes 6cylinder (450hp). Fuller 8LL. Aluminum wheels, A/C, power locks & windows, 66k GVW. Dickirson Septic Truck, 3,000 gallon, steel tank. Masport PTO-drive pump. 149,278 miles. Stock# 8405 \$79,500

> 866-250-8260, PA www.0pdykes.com

2008 Ford F750: 7-speed. 260hp Cummins, exhaust brake, rear lockers, new 2,500-gallon steel vac tank - you choose the pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

1996 Western Star: Detroit Series 60, 18-speed transmission. Hendricks suspension. 3,365-gallon vacuum tank, Masport 400 pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014, CO.

1994 Peterbilt 377: Detroit Series 60. 10-speed transmission, 3,365-gallon vacuum tank, Masport HXL pump. www.pumpertrucksales.com. Call JR. @ 720-253-8014.

Twelve great older pump trucks -\$35.000 each. Big power, Jake brakes. 3.365-gallon vacuum tanks. Masport pumps. All makes & models. www.pumper-truck. com. Call JR @ 720-253-8014, CO. (PBM)

Pre-owned Progress 4,400 U.S. gallon, aluminum, vacuum-pressure tank. Mounted 1995 Peterbilt 377 cab and chassis with a Masport HXL400WV vacuum pressure pump package. (Stock #8258V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648)

Pre-owned Presvac, 5,000 U.S. gallon, carbon steel, vacuum-pressure tank. Mounted on 2004 Western Star cab and chassis with a Masport 20W vacuum pressure pump package. (Stock #3363V) www.Vacuum Salesinc.com, (888) VAC-UNIT (822-

Pre-owned Coleman 3,500 U.S. gallon carbon steel vacuum tank, mounted on a 1989 Peterbilt 377 cab and chassis and a Thompson Tank pump package. (Stock #9643C) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648)

New 4,600 U.S. gallon, carbon steel vacuum tank and a RCF 500 vacuum-pressure pump installed on a (1) 2012 & (4) 2013 International 7600s cab and chassis. \$169,900 each includes 12%^ F.E.T. (Stock #13509 A-E) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648) (PBM)

SERVICE/REPAIR

Dynamic Repairs - Inspection Camera Repairs: 48 hour turn-around time. General Wire, Ratech, Ridgid, Electric Eel, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. Rental equipment available. For more info call Jack at 973-478-0893. Lodi, New Jersey.

SLIDE-IN UNITS



For sale: Slide-in unit, 190/waste, 75/ fresh. Conde six vacuum only/5.5 Honda. Call for price.

Randy 315-375-7867

P03

TANKS

1999 Keith Huber Dominator 4,000-gallon hazardous tank w/ roll over and pop offs. dumping, full opening rear, 3" hyd. driven pump, hvd. cooler. Thickness test 1/2010. pressure test 9/2006, leakage test 2/2011. 590 hours. \$44,900. craig@aedisposal.com Phone: 678-772-4590



New Aluminum Tank: 1,500-gallon waste/500-gallon fresh with work stations. \$20,500. All size aluminum tanks available. Call Rodney Lane:

270-832-3793

P03

One (1) used 900-gallon tank, 300 fresh/600 waste with Conde SDS6 pump. \$5,250; Two (2) used 1,575-gallon tanks; Two (2) used 900-gallon single-compartment vacuum tanks. 337-315-0692

Pre-owned petroleum, steel, 3,800 U.S. gallon, carbon steel, vacuum pressure tank. www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648) (PBM)

Vacuum Tanks - New: Sizes from 1,900-4,000 gallons. Great deals! Check us out: 3,600-gallon for \$14,000 and 4,000-gallon for \$15,000. All complete! Will make you a great deal! Delivery available. www.JEagleTanks.com. Contact Jerry: JEagleTanks@yahoo.com or 800-721-2774. (PBM)

TANK TRAILERS



1989 Acro vacuum tank trailer w/ air-ride suspension, stainless steel hose travs and stainless steel fenders. Good condition. \$12,500

606-834-1545, KY

1975 Fruehauf 10,000 gallon, 3-axle tanker. Used to haul septage to Shelton, Washington. \$19,000 OBO. Call Randy 360-301-0249 or e-mail foresthillfarm@yahoo.com

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Septic pumper and vacuum die-cast toy trucks: In your choice of colors and logos, several cabs available. Call 877-450-2100, write to Granite State Collectibles, PO Box 440, New Ipswich, NH 03071; or www. granitestatecollectibles.com. (PBM)

TRAILERS-VACUUM/TANKER



Imperial Vacuum Trailers: In stock, 6000- and 6300-gallon aluminum single-compartment Imperial vacuum trailers.

Call Mike 800-558-2945 Ext. 328 PBM

Walker tanker trailers, three available — 1-1982, 2-1989. 6,000-gallon stainless, non-vacuum. 6" Betts rear valves. stevebyrne@bytecinc.net 608-778-0234 (P03)

1994 Presvac 5,500 gallon non-code vacuum trailer, Reyco spring suspension, 80%+ brakes, tires. No rust on frame or suspension. KLM Companies 617-909-9044 (PBM)

New Presvac, 5,500 U.S. gallon, carbon steel DOT certified 412 vacuum pressure trailer with a front porch mounted PVB-750 vacuum pressure pump, driven by a Deutz air-cooled diesel engine. (Stock #13525V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648) (PBM)

4,000-gallon Lely Self-Contained Vac/Press Tanker: Isuzu motor, Fruitland RCF 500 vacuum pump, Evans tri-axle trailer with aluminum wheels. Excellent condition - \$27,500. Pictures are available upon request. Please call 910-738-5311. (PBM)

TRUCKS - MISCELLANEOUS





2002 Volvo VHD64 4,500-gallon vacuum/pump truck. Low miles - 217k. New tank/pump etc. Factory heavy spec 20k front/46k rears. \$87,500

Stephenson Specialty Trucks 903-736-1407, KS PO3



1989 International 2600 Cusco vacuum truck for sale. SIHI liquid ring 1,200cfm pump. 195,000km. 2,700-gallon Imperial tank. \$27,000 CAD. Located in Montreal, Canada. Call or email Patrick Kelly:

> 514-453-2279 patrick.kelly@sanivac.ca www.sanivac.ca

P03



Ryan 801-430-7287, UT



> bill37nj@aol 732-849-1900, NJ



Tractors w/vacuum pumps, 2 available. 1-2007 Freightliner M-2: Mercedes 450hp, 173,000 miles, all aluminum wheels, NVE 866 Max-Pak [1-year-old] vacuum pump, white, \$75,000. 1-2004 Freightliner Century: Mercedes 450hp, 627,000 miles, new red paint, all aluminum wheels, De-Mag 150 water-cooled vacuum pump, \$27,500. stevebyrne@bytecinc.net 608-778-0234

2005 Freightliner Business Class: Under CDL. C-7 CAT, 6-speed, air brakes. www. pumpertrucksales.com. Call JR. @ 720-253-8014, CO. (PBM)

VACUUM EQUIPMENT



2007 Sterling Guzzler dry vacuum truck with boom for sale. Truck has 82,739 km and 9,308 hrs. 10-speed transmission. CAT engine. \$160,000

905-792-9046, Ontario F

58" Vacuum bag cages SS, please make an offer. Fits tubesheet hole 5.125. Request image detail to don@jetblast.net, 410-746-4503 (P03)

VACUUM LOADERS

2000 Gap Vax HG57 WET/DRY on Volvo WG64, 5,500 cfm, 27" Hibon blower, Cummins engine, chassis tank and bag house, in good condition, ready for work. KLM Companies. 617-909-9044.

2008 Sterling with a Guzzler wet/dry industrial vacuum loader, 18-yard debris body, dump type, carbon steel vacuum tank. (Stock#2347V) www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648)



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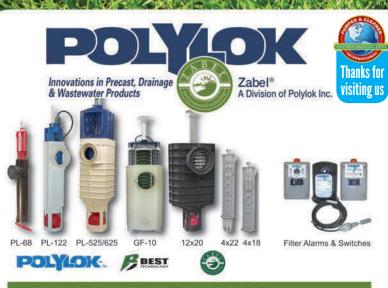
Wanted to Buy: Vactor 2100s and late model Guzzlers. Cash. Phone 800-336-4369. (PBM)

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WATER JETTING EQUIPMENT: We sell, repair and retrofit water blasters. Visit us at: www. waterjettingequipment.com or phone 714-259-7700. (PBM)

Gardner Denver T-375M: Bare Shaft pump. Gardner Denver T450M Bare Shaft pump NLB 20-200: 12 gpm @ 20,000 psi. Gardner Denver LC-1500: 390 gpm max, 15,000 psi max. NLB 36-200 6 gpm @ 36,000 psi. HT-150S 25 gpm max 10,000 psi max, Shell Side Machine, Wheatley 165: 30 gpm @ 10,000 psi, Wheatley 165: 17 gpm @ 20,000 psi. Wheatley 125 with aluminum bronze fluid end. Boatman Ind. 713-641-6006. View @ www.boatmanind.com. (PBM)





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