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BASIC TRAINING:
Avoid root intrusion p. 20

SNAPSHOT:
New Mexico's
Mike Krepfl
p. 34

STEP BY STEP

Shane Broyhill built up a decade of varied experience in the onsite sector before launching a business focused on system inspection, repair and replacement p. 14



SYSTEM PROFILE
Going big in Canada
p. 22

PRODUCT FOCUS
Large Scale and Commercial Treatment Systems p. 28

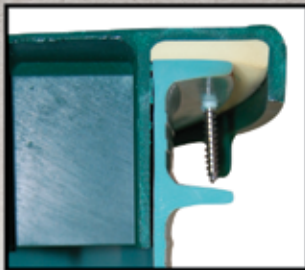
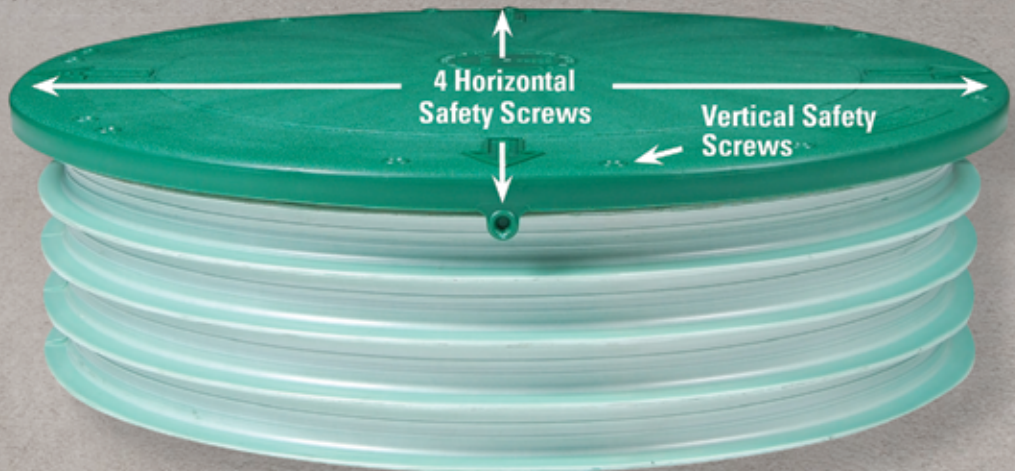


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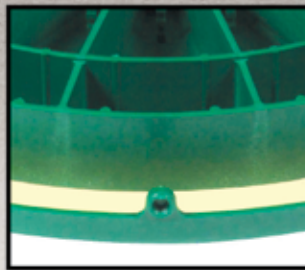
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INSTALLER PROFILE:

Step By Step
By Ted J. Rulseh

ON THE COVER:

Shane Broyhill started North Carolina's Broyhill Environmental in 2019 and specializes in onsite inspections, repairs and new systems. He is shown during a septic tank installation with Bosch Laser level equipment and a Cat backhoe. (Photo by James Nix)

8 @onsiteinstaller.com

Be sure to check out our exclusive online content.

**10 Editor's Notebook:
Time to Put Out the "Help Wanted" Sign Again?**

Follow these tips to reach quality candidates in a competitive job market for the trades.
By Jim Kneiszel

**20 Basic Training:
Root Intrusion or Root Canal?
They're Both Painful for Installers.**

Make sure to check every connection for watertightness or you risk costly callbacks and crabby customers when roots fill a pipe.
By Jim Anderson and Dave Gustafson

22 System Profile: Doing Double Duty

A Canadian pipeline job forces relocation and supersizing of an onsite system serving two homes on one property.
By David Steinkraus

**28 Product Focus:
Large Scale and Commercial Treatment Systems**

By Craig Mandli

**32 Case Studies:
Large Scale and Commercial Treatment Systems**

By Craig Mandli

**34 Snapshot:
Wastewater Professionals Need to Know Their Worth**
New Mexico pumper Mike Krepl: "We are a critical part of day-to-day life for people."

36 Associations List

**37 Product Spotlight:
Digital hub helps contractors make sense of telematics**

By Craig Mandli

**38 Rules and Regs:
Complaints Arise From Proposed
Stricter Onsite Regulations in Massachusetts**

By David Steinkraus

Coming Next Month

ISSUE FOCUS: Annual Buyer's Guide
Contractor Profile: Like father, like daughter
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ADVERTISER INDEX

April 2023

	Alita Industries, Inc.	26
	Ashland Pump	8
	BioMicrobics, Inc.	12
	BIOROCK.....	39
	BrenLin Company, Inc.	27
	Crane Pumps & Systems.....	13
	Crest Precast, Inc.....	25
	Delta Treatment Systems, LLC.....	6
	E-Z Treat Company Inc.	26
	Eljen Corporation.....	5

	FujiClean USA	29
	Infiltrator Water Technologies, LLC	3
	Jet, Inc.	27
	National Precast Concrete Association	7
	Norweco, Inc.	9
	Polylok, Inc.....	40
	Roth North America	18
	Sim/Tech Filter Inc.	35
	Simple Solutions Distributing LLC.....	35
	SJE Rhombus®.....	25
	T&T Tools, Inc.	12

The Utility Expo.....	19	
	TUF-TITE, Inc.....	2
	Wholesale Septic Supply.....	11
	Wieser Concrete.....	21
Classifieds.....	37	

Enjoy this issue!

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Tight Timeline and Job Site No Match for Precast Concrete



Photos courtesy of Jensen Precast

Challenge: An event venue near Lake Tahoe needed to upgrade its gravity grease interceptor system to meet increasing demands. The project team was up against a condensed timeline and several site restrictions due to the location of the previous system.

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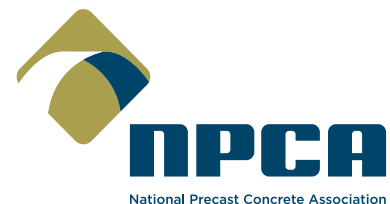
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INDUSTRIAL WASTEWATER Garage Floor Drains

In general, there are separate regulations in most states about how to handle and treat industrial wastewater. Garage floor drains at residences sometimes fall between the cracks and questions arise as to the proper methods to deal with this wastewater if the home is served by a septic system. Check out this article to learn more about the preferred ways to handle liquid wastes from private garages.

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As a business owner, you know your stuff. But are you using that expertise and knowledge to get eyes on your business through HARO? If you have no idea what HARO is, you're not alone. This article covers the basics of this secret weapon and why you should at least be exploring it for your business. onsiteinstaller.com/featured

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– *Finding and Retaining Good Workers Begins With Respect*
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DO'S AND DON'TS

Documenting Employee Behavior

One of the most important aspects of managing employees is keeping careful records of their workplace performance — specifically, documenting any behavioral issues that arise. Through the documentation of policy infractions, customer service issues, or particularly meritorious acts, you're better positioned to provide coaching and professional development opportunities. However, there are right ways and wrong ways to approach employee behavior documentation. This article provides a few guidelines for team leaders to consider. onsiteinstaller.com/featured

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Jim Kneiszel



Send your comments, questions or opinions to Jim Kneiszel at editor@onsiteinstaller.com

Time to Put Out the 'Help Wanted' Sign Again?

Follow these tips to reach quality candidates in a competitive job market for the trades

Every spring I think about one constant obstacle faced by onsite system installers: Finding new workers to either replace someone who's resigned or retired, or to build a new crew to answer growing demand for their services.

The situation is kind of like the classic 1993 Bill Murray movie, *Groundhog Day*, isn't it? You know the story about weatherman Phil Connors who is trapped in Punxsutawney, Pennsylvania, home of another Phil, the famous groundhog who every year predicts when winter will end. Caught in a time loop, the weatherman wakes up every morning only to realize it's Groundhog Day again and he's powerless to turn the calendar forward.

In the world of installers — or just about any skilled trade — you are Phil Connors, and every day you wake up facing the same frustrating challenge: finding new helpers. And just like *Groundhog Day*, the problem comes around every year at the end of winter. So how can you break through this constant short-staffing issue and build the business the way you've always wanted to?

Nobody says it's going to be easy, but overcoming small-business challenges seldom is. But let's see if we can make some suggestions to help you reach your goal to serve more customers in the upcoming busy season.

THE PROBLEM

First, it's always good to know what you're up against. We already know there is a graying of the installer workforce. You've probably seen this in your ranks. Your most seasoned technicians and machine operators are in their 50s and 60s and the end of the career is in sight for them. Or you've already lost a few of those valued employees and you're feeling the pinch — both in losing their expertise and strong work ethic.

According to the construction workforce staffing website www.skillwork.com, there would be a need for a projected 1 million new construction-related workers if building trends continue to grow. It noted that in 2021, construction spending was set to increase to \$1.45 trillion.

A recent Milwaukee Tool report noted that three out of four tradespeople viewed the labor shortage as a problem. It noted that the U.S. Chamber of Commerce said 88% of contractors were having moderate to high levels of difficulty hiring skilled workers. That report gave a familiar explanation to explain the shortage. It noted that since 1980, college enrollments are up by

Installers have a good story to tell to prospective employees. It's up to us as an industry to make sure that message is received by the quality candidates you want to reach.

more than 60%, partly owing to a lack of respect for the skilled trades and a misconception that college offers a path to higher pay.

The financial and pay issues have been widely reported. Those who go the university route sometimes wind up in careers making more money, but the four-year degrees create an average student debt of about \$30,000 and an average base pay of about \$45,000 upon graduation. But as Milwaukee Tool reported, the average pay for traditional trades is \$50,000 and up with less time spent in the classroom and less student debt accrued.

TOUT THE INDUSTRY

Based on the growing demand for wastewater services and the limitless career opportunities, installers have a good story to tell. It's up to us as an industry to make sure that message is received by the quality candidates you want to reach. Following up on some research of my own, here are some suggested strategies for recruiting new installers into the fold:

Keep it in the family

Draw upon your existing team to find that next great crew. Get your workers involved in the recruiting process, helping create job descriptions, lists of skills and traits they would like to see in job candidates. Start an employee referral program. This means offering your employees a bonus of some type if they bring in a friend or family member to apply for a job. For example, you might offer a \$200 reward to any employee who refers a candidate who is hired and successfully completes six months of service. Sometimes the best networking will be through the workers who have been doing a good job for you all along.

Boost your benefits

The best way to find new workers might be by making the job and your company more attractive for workers. Raise wages above what is being paid for other similar jobs in your area. Add health and life insurance coverage or improve on the coverages you currently offer. Think outside the box to offer fringe benefits that would make your company stand out from other jobs in the trades. Things like clothing allowances, new work boots every year, quarterly bonuses or profit sharing for top performers and the like will show you value employees and build your reputation as a generous employer.

Find some flexibility

Especially for younger workers, free time can be even a bigger motivator than money. People with young families and priorities in personal pursuits crave a flexible work schedule. And just because free time is important to them doesn't mean they would not be great workers for you. Many younger workers, the millennials and Generation Z, are able to manage their priorities and deliver for both their families and their employers. Installers traditionally are sun-up to sundown workers during the busy summer season, but there is a balance where you should be able to offer a flexible schedule to more workers and still be able to meet the needs of your customers.

Use social channels

To find fresh faces, you need to take your message where potential

workers are hanging out. Promote your job openings through online recruiting sites like Indeed and Zip Recruiter, but also hit Facebook, Craigslist, TikTok or Instagram. If you're not familiar with the latest social media trends, don't be afraid to ask your staff for advice on where and how to generate a buzz for your business. Better yet, offer incentives for your crew to post videos demonstrating what they do for a living or talking about what a great place your company is to work. Always be on the lookout for ways to increase the exposure of your company to new people.

Support career growth

Always show that new employees can find advancement opportunities in your company. Look for ways to promote helpers to crew leader positions, and crew leaders to job supervisors. Offer to pay for continuing education, whether that's training through a state association or sending employees back to school to get a degree in soils or certification for operating a new piece of equipment or installing a new advanced treatment technology. Encourage and pay for your staff to attend your state's trade association conferences or the WWETT Show so they can see the vast potential of the industry.

Seek women and minorities

Although women and minorities make up more than half of the workforce, they do not necessarily gravitate to the wastewater industry in numbers to

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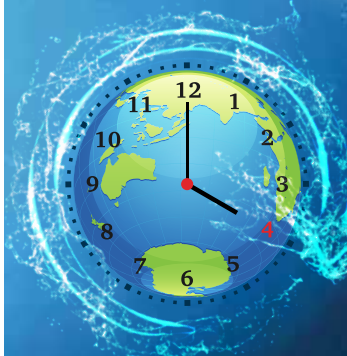
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EDITOR'S NOTEBOOK

match. Write your job postings to be gender-neutral and encouraging to nontraditional workers. To reach people with diverse backgrounds, create posts in different languages. Offer language training programs for potential workers who are not fluent English speakers. After you hire your first woman technician, for instance, it should become easier to recruit a second, third and so on.

Go back to school

Look for ways to partner with a local high school or trade school to promote jobs in wastewater. Seek out teachers in the trades and offer to speak to classes or provide field trip opportunities where you can show the work you do. Think about offering a day of work experience or a paid internship for students who want to explore the field.

BREAK THE CYCLE

Just like weatherman Phil Connors eventually found his way beyond Groundhog Day, we need to get past the chronic worker shortage in the wastewater industry. Your company is depending on it. Your customers are depending on it. The world — with so many people utilizing decentralized wastewater treatment — depends on it.

Try new tricks and techniques to recruit new members to your team. Then let the rest of us know how you did it. □



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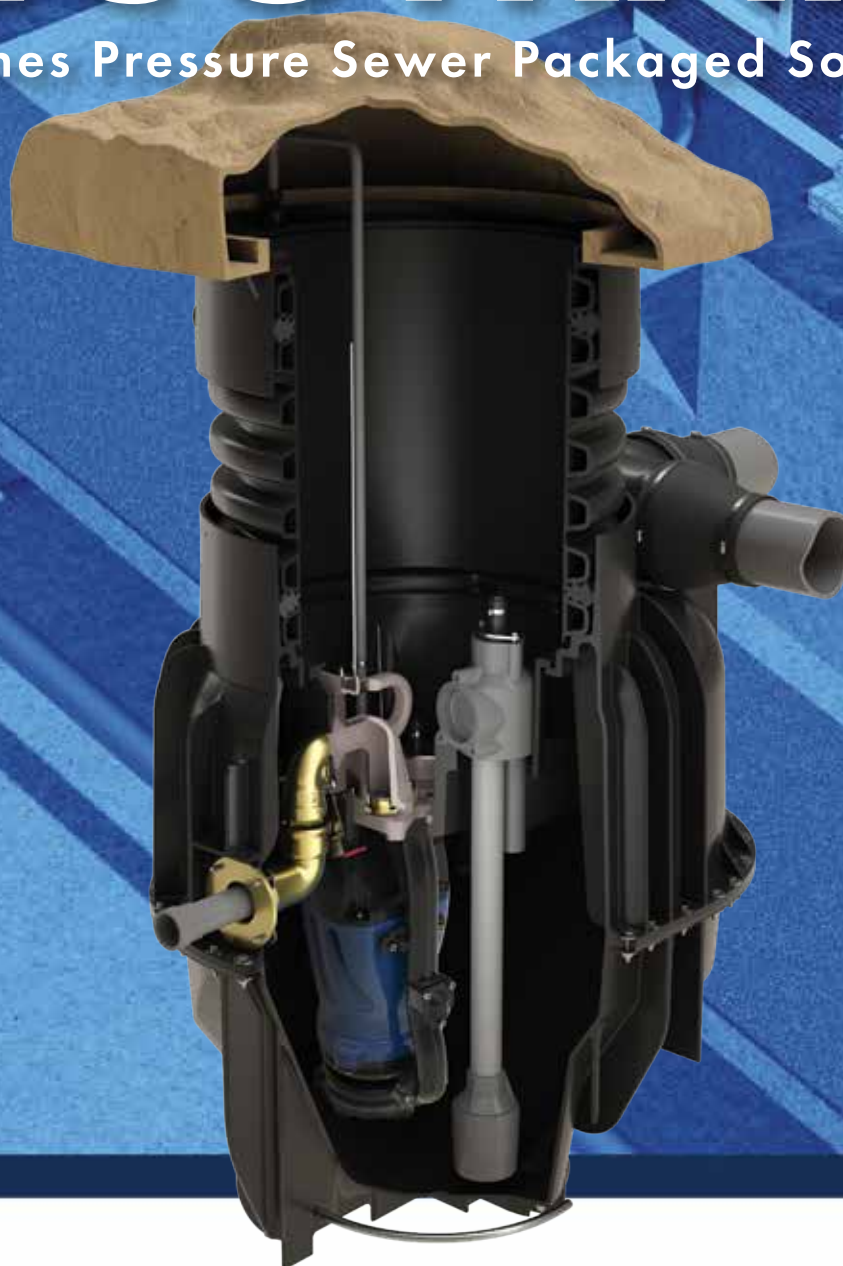
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STEP BY STEP

Shane Broyhill built up a decade of varied experience in the onsite sector before launching a business focused on system inspection, repair and replacement

By Ted J. Rulseh



Shane Broyhill got started in the wastewater industry at age 14, riding along in a vacuum truck with an uncle who had recently started a pumping business.

In the years that followed he alternately worked in the restaurant sector and learned different sides of the onsite business. Three years ago he founded Broyhill Environmental, specializing in time-of-sale septic system inspections, which often lead to repairs that include tank replacements and complete new installations.

In 2022 he and John Paul McLaughlin, chief operating officer, completed more than 300 inspections in the fast-growing greater Piedmont Triad area of North Carolina, around Winston-Salem, Greensboro and High Point. Broyhill plans to continue growing the business and may decide to expand into pumping, mainly to support inspections, which require tanks to be cleaned for examination.

To Broyhill, success in the industry boils down to customer service. “It’s about trying to do the best we can for our clients,” he says. “That goes across the board, whether you’re pumping, inspecting, installing or working with local government.

“What can we be doing better to help people? I’m very meticulous when installing a system. I’m not the cheapest, and I never will be. But you would be hard pressed to find somebody who pays as much attention to detail as I do. I will lie awake at night until I make sure that system will work for the customer.”

“I’m very meticulous when installing a system. I’m not the cheapest, and I never will be.”

Shane Broyhill



Broyhill Environmental
Winston-Salem, North Carolina

Owner: Shane Broyhill
Founded: 2019
Employees: 3
Service area: Greater Winston-Salem, Greensboro and High Point
Services: Onsite system inspection, repair and replacement
Affiliations: North Carolina Onsite Wastewater Contractor Inspector Certification Board
Website: www.broyhillenvironmental.com

ON THE JOB TRAINING

Much of what Broyhill learned through his years in the onsite industry came from his uncle, Kevin Powell, who owned Powell Septic Tank in Taylorsville, North Carolina. While in high school, Broyhill advanced from ride-alongs with his uncle to actually helping out on job sites.



▲ Shane Broyhill cuts a length of PVC pipe during a tank installation. A Bosch laser level and Cat backhoe were used on the project. (Photos by James Nix)

“I liked doing that more than the job I had waiting tables,” he says. “I could work during the day, make more money and have my nights free. I didn’t mind doing hard manual labor.”

Through high school and college he worked for his uncle during summers and on winter breaks.

Broyhill earned a degree in psychology from the University of North Carolina at Chapel Hill.

When he returned his uncle was diversifying into inspections. That was Broyhill’s introduction to all sides of the onsite industry.

“Once you start doing inspections, you’re going to find problems, and the problems need solutions,” he says. “The solution providers mostly are installers. We were still doing mostly inspections and pumping, but I got to see what the installation side of the industry looked like.”

For several years Broyhill was in and out of Powell’s business. Soon after college he moved to Charlotte to pursue opportunities in the restaurant sector. When a job there didn’t pan out, he came back. His uncle was busy running the office, so he got his CDL and started driving the vacuum truck.

“It was a little bit more freedom,” he recalls. “I got to run that part of the show myself. I like new challenges. But I didn’t like driving the truck. It was super terrifying. I had never driven a stick shift before. There were a lot of steep hills, and for someone not versed in shifting gears, that’s challenging.”

Meanwhile, he was learning to perform inspections while his uncle explored installing. After a few years, they parted amicably. Broyhill tried restaurant jobs in Charlotte, and then in Winston-Salem, where he met his wife, Ashli Thomas. In the end, he decided to create something of his own, and that was in the onsite business. He took an exam, became certified as an inspector and worked for Powell doing inspections and pumping.

TRIAL BY FIRE

In December 2020 he earned his installer certification; soon thereafter he took on his first installation, even though he had never operated a backhoe. “I had done an inspection in the Triad area,” he recalls. “The client needed a whole new system. I put together a quote and got the job. My uncle told me, ‘Give it away. That’s a tough system. I wouldn’t do it. You need to cut your teeth on something smaller, not as overwhelming.’”

Figuring he had to learn sometime, Broyhill took the job and told Powell he needed a week off. He rented a backhoe from the local Caterpillar dealer, climbed aboard, taught himself how to run it, and went to work with McLaughlin. “What I thought would take a week took two weeks. We ended up replacing the septic tank because it was four feet in the ground and had caved in. At the end we had installed beginning-to-end a pumped system with pressure manifolds and all.

» John Paul McLaughlin, chief operating officer at Broyhill Environmental, prepares tank access points during an install. Shane Broyhill works in the background.

✓ Broyhill sets up a Bosch laser level for a residential septic system project.



“It was a pretty tight area to fit the septic tank and pump tank. We ran into a big rock vein that we had to curve the lines around. There was a big tree in the way at one point. The guys from the county said, ‘We cannot believe you did this. It is all downhill from here.’”

From that point on, he was on his own. He earned subsurface operator certification, which qualifies him to service more complex systems, such as those with aerobic treatment units and drip dispersal, which require regular maintenance checks. For installations he prefers chambers (Infiltrator Water Technologies), Zoeller pumps, and concrete septic tanks from Shoaf

Precast or High Point Precast Products.

Most of the work still involves inspections, which follow a consistent format in line with guidance provided in the state-mandated class he took for certification. He offers a fixed price for a specific procedure. He inspects every com-

“People say, ‘You don’t look like septic guys.’ And I say, ‘What’s a septic guy supposed to look like?’ ”

Shane Broyhill

ponent of the system, checking the drainfield with a probe rod, making sure the drainfield absorbs water, taking measurements to ensure that required setbacks are being met, digging up the septic tank and having it pumped to look for defects.

The most common problem he finds is tank deterioration from hydrogen sulfide. “Tanks go bad a lot quicker than drainfields do,” he says. “The gases in the tank eat the concrete. Below the level of the liquid, it looks like a brand new tank, but in the freeboard space that’s exposed to the gases, you can start to see the aggregate very early on.”

“In any tank installed before 2000, you see the aggregate showing. You find cracks in the seams of the inlet and outlet lids and in the outlet walls. As long as people get their tanks pumped when they’re supposed to, the drainfield will probably last 60 to 70 years before anything goes wrong.”

IMPROVING THE INDUSTRY

One issue he’d like to see resolved is the patchwork of county-by-county regulations and procedures. He might do work in a half dozen counties on a given day, and as many as 15 in a week, and every one has slightly different rules.

PREPARED TO PUMP

Shane Broyhill isn’t enthused about adding a vacuum truck to his business, but he believes sooner or later he will have to. It’s the price of growth.

“It’s seeming more and more like it will be a necessity,” Broyhill says. “I didn’t get into this to pump. I like everything except pumping. If I get a pump truck, I have to drive it. That takes away from contacting Realtors and meeting with county inspectors. That pump truck needs to be pumping in order to pay for itself.”

At present, Broyhill contracts with area pumpers to empty septic tanks for time-of-sale system inspections. He has invested time building good relationships with them. They send him referrals for inspections. The connections are mutually beneficial and noncompetitive: “They don’t inspect and install. I don’t pump.”

At the same time, as Broyhill Environmental expands, scheduling conflicts arise, and pumpers might not always be available when needed. “We’re going to get very busy because we keep growing,” Broyhill says.

“If we were to stay at the size we are, we could probably manage without owning a pump truck. But my goal is to continue to grow. There will be a point where the pumpers can’t keep up with me. It will become absolutely necessary at some point to have a pump truck just to keep up with what we do.”



◀◀ Broyhill fits the outlet piping coming from a replacement septic tank on a residential onsite project.

▼ McLaughlin prepares new pipe running from the house to a new septic tank the crew just installed.

"I've been in this industry for a long time, and it takes a lot to surprise me. But I enjoy when something comes up that I've never seen before."

Shane Broyhill

"There's one county where we submit an application for a standard tank replacement. They get back to me and say, 'OK, call us when you want us to do the final inspection.' They trust that I know where to put the tank and that all the setbacks will be met. They come out and inspect, we cover it up, and that's it. The application is free.

"There's another county where there's an application fee. In about eight weeks they'll come out and tell me where they want the tank, which is exactly where I would have known to put it. But I have to wait those eight weeks. I'm not against local government. I like people being able to govern in their own way, but it is kind of a pain working in all these counties when every single one is different."

Over the years, Broyhill has learned to network and build a loyal following of real estate agents who send inspection work his way. That means cold calling, knocking on doors, handing out cards, talking in front of groups, identifying the right person in a real estate office to talk to.



It also means projecting a professional image.

"People look down on this industry," he says. "They think it's dirty: Who would ever want to do that? When John Paul and I go into Realtors' offices we're in nice khaki slacks and a button-down short or a polo. We look very presentable. People say, 'You don't look like septic guys.' And I say, 'What's a septic guy supposed to look like?'"

» The crew of John Paul McLaughlin, Matt Gravely and Shane Broyhill are shown during a septic tank replacement.



“I come across as well spoken. I can be an intellectual and still get out there and do manual labor. I want to be a different breed of septic contractor. I like the look of surprise on people’s faces when I’m able to speak to them about something other than septic. I don’t have to fit a stereotype.”

Customer service includes answering the phone courteously: Broyhill Environmental. This is Shane, how can I help you? “I take time to answer questions. I love to educate. I don’t need people being ignorant of their system and treating it poorly. I want people to walk away from an interaction more educated than when they came to me.”

OFFER A HELPING HAND

“I’ve been in this industry for a long time, and it takes a lot to surprise me. But I enjoy when something comes up that I’ve never seen before. If I run into a

question I don’t know the answer to, I like the challenge. I’ll call whoever I have to in the state to find out the answer.”

His psychology degree helps him understand and empathize with customers. “It does seem to help when you can appreciate that not everyone operates the same way,” he says. “Some people do deserve compassion.

“You take a lady who’s 80 years old and on Social Security, and she needs a new drainfield. She doesn’t have enough money. I’m not a charity, but for this lady, what can I do to keep the cost down for her as much as possible? Maybe ask her to try cutting back on the water usage. Knowing how to interact with different people helps me provide better service.” □

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Root Intrusion or Root Canal? They're Both Painful For Installers.

Make sure to check every connection for watertightness or you risk costly callbacks and crabby customers when roots fill a pipe

By Jim Anderson and Dave Gustafson

In our workshops, one of the installation keys we discuss at great length is making sure sewage tanks, piping between system components and distribution or dropboxes are watertight. The reason for having watertight system components is twofold. First, you don't want them leaking raw sewage or septic tank effluent into the surroundings or to create a pathway for runoff or groundwater to infiltrate into the system. Second, if the components are watertight, they will be resistant to root penetration.

Across the country, different types of vegetation are problematic to septic systems in terms of their roots aggressively searching for water and nutrients. They will take advantage of even the slightest openings to penetrate and obtain the water. A couple of examples of trees often identified as being problems with roots: In humid areas, willows and white pine; in arid or tropical regions palm trees; also, in arid regions mesquite and palo verde.



It is entirely the responsibility of the installer to properly backfill around tanks and piping so the piping into the tank doesn't end up at an angle due to settling around the tank.

No matter where you live and work, you can't escape the threat of root intrusion. This is why it is important to inform the homeowner not to plant this type of vegetation around their septic system. We spend time in our classes discussing establishment of vegetative cover with fibrous root systems, not deep-penetrating roots. Elimination or avoidance of problem vegetation is the first line of defense to protect from root problems.

RESOURCEFUL ROOTS

Avoidance only goes so far because even less aggressive types of vegetation will seek out water to survive during dry periods or droughts. It is why if you dig alongside an operating sewage treatment trench, you will often find an accumulation of roots along with the developed biomat. The plants are tapping into the water and the nutrients in that area.

One important note is that roots do not typically plug the entire drainfield because they do not grow where there is a lack of oxygen, for example when there is sewage ponded in the trench. If the trench is empty — as it may be in sequential distribution with dropboxes — it may be because the necessary water is not there.

In sewage tanks something similar operates. Where sewage is contained at depth, the roots do not grow into the anaerobic environment. Rather, they will be found in areas with intermittent flow or just on the outside of the sewage. Therefore, when roots penetrate the tank, a root mass may often be found on the lid and then growing into the baffles and piping to other components.

◀◀ The technician pulls out a long strand of roots that was blocking flow to the drainfield. (Photos courtesy of Jim Anderson)

»» This pipe is jam-packed with roots and completely stopped the septic system from functioning.

At any point where pipes penetrate the tank — for example lids, risers, manholes — it is critical for tanks to be sealed and watertight. An important note: Do not seal the manhole in a way that makes it difficult or impossible to gain access to the tank for inspection and pumping.

Any piping in or out of the tank should have gaskets at the penetration; either cast into the tank when manufactured or added by the installer. Follow the manufacturers specification to attach and seal the tank lid and any access to the tank or baffles.

It's also important to make sure the piping between parts of the system remain watertight. For typical installations, pipe sections are connected using solvent welds with slip joints. These connections are effective with PVC pipe as long as the PVC primer and cement are used properly. When we discuss this in class, it usually causes a couple of snickers, because of course we know how to glue pipe! Nevertheless, we have been on multiple sites troubleshooting systems where there are root problems only to find one or more (usually more) connections was not properly made.

JOINING PIPE

There are a couple important items to keep in mind when “gluing” pipe. It is critical both the exterior and interior surfaces to be joined are clean and dry. If not, the connection will not be solid. Before applying the primer and then the cement, test the connection to see if it fits properly, this will avoid having to start over when the connection is glued and it is obvious the connection is not proper.

An improper connection like this is not watertight and is a location where roots can enter the piping and expand. Remember to use the cleaner first to remove any final dirt from the pipe and fittings and then use the primer to soften the pipe and finally apply the cement (glue). The last gluing step needs to be done quickly before the glue dries, so everything needs to be ready.

Some other common ways piping connections or pipe itself loses watertightness and is subject to root penetration is when the system is backfilled. It is entirely the responsibility of the installer to properly backfill around tanks and piping so the piping into the tank doesn't end up at an angle due to settling around the tank. It is important to be careful that piping is not damaged or joints are separated when the supply trench is backfilled. Any opening like this is subject to root penetration.

It takes some time for root problems to show up. In the extreme, roots can totally block and fill up the piping to the point it allows little to no water to pass through. This is when you get the call sewage is backing up into the house or surfacing and you find roots are the problem. Locating and fixing problem areas is time-consuming and expensive; with the homeowner hovering over you expecting you to fix it. Better to do it right from the start. □



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Doing Double Duty

A Canadian pipeline job forces relocation and supersizing of an onsite system serving two homes on one property

By David Steinkraus

▲ Technicians from Fraserway Prekast and Canadian Wastewater Solutions install the new tanks at Abbotsford, British Columbia. At left, a technician from PumperGuys Tank Service, empties one of the old tanks. The tank delivery truck is parked on a road built because of the high water table, and the same site was used for the sand bed. (Photos courtesy James Stiksma)

The old onsite system was failing at a rural property outside Abbotsford, British Columbia, and construction of a crude oil pipeline coming from Alberta brought a new system.

The pipeline ran through the property, and the old drainfield was right where work crews needed to set up a drill, says James Stiksma. He owns Canadian Septic Inc., in Langley, British Columbia, and handled installation.

Canadian Septic was originally contracted by Progress Lands, an energy infrastructure company, to locate septic systems potentially in the way of new pipeline in the Fraser Valley. But along the way the pipeline was sold to Trans Mountain, a corporation owned by the Canadian government. That delayed work by about five years.

Two homes

Using the new system are 17 members of a multigeneration family who live in two houses on the land that also holds a nursery and a blueberry farm.

One house is about 4,000 square feet. The other house is much smaller, and they're about 60 feet apart.

Wastewater leaves the smaller house in a 4-inch PVC pipe and runs about 10 feet into the first of two concrete tanks. First is a 720-gallon single-compartment tank to settle trash and solids. Previously in this position was a lift station, and when the power failed, wastewater flow stopped. Adding two tanks provides storage capacity for emergencies.

Power isn't out often, Stiksma says, but "the challenge in Abbotsford for some people who are on septic is that Abbotsford's done a really good job of running city water to all different areas. So the power can go out, and now all your (septic system) pumps don't work, but you can still put water into your system."

Next to the first tank is another 720-gallon concrete tank about 8 inches away. In it is a Liberty Pumps duplex pump system sending wastewater about 300 feet through a 2-inch Schedule 40 pipe.



◀ Jim Smith of WestCoast Telebelts, top right, briefs the crew about the potential hazards of working around a Telebelt system at the project in Abbotsford, British Columbia.

▼ Arien Brouwer of Canadian Septic, left, and a contractor's technician walk the top of the finished sand bed. Pipes are set on a 4-inch bed of 1/2-inch drain rock to aid water dispersal.



“Because that lift station was there before, pumping over to the old tanks, we were just able to repurpose that line, and that saved us a bunch on excavating and install time and pipe,” he says.

Effluent leaves the larger house in the preexisting 4-inch pipe, and the 2-inch joins it.

Mingling the effluent

Wastewater from both houses flows into a series of three concrete tanks. First is a 2,401-gallon tank to settle solids from the larger house.

Water flows out about a foot into a 1,441-gallon tank with a moving bed bioreactor from Canwest Tanks & Ecological Systems. This consists of a Blue Diamond pump supplying air for floating media inside the tank. A 3/4-inch pipe recirculates sludge into the first tank. The Blue Diamond pump also handles this function.

From the aerobic tank, effluent flows into a 3,602-gallon concrete tank with a Liberty duplex pump. In between the aerobic tank and the pump tank is a UV system from Live Wire Solutions.

A 2-inch line carries effluent about 80 feet from the pump tank to a T joint on the sand bed and then another 80 feet to a pair of manifolds. These split the flow among 341 feet of 1-inch pipe with 1/8-inch holes drilled 27 inches apart. (British Columbia code requires a minimum of one hole for every 6 square feet of infiltration area.) Pipe is divided into two zones, and valves allow each zone to be isolated for maintenance. The sand bed is 30 feet wide by 203 feet long and is 2 to 3 feet in depth, varying with the contour of the ground. Pipe is set on top of 2 inches of washed 1/2-inch drain rock in a trench in the top of the bed. The whole bed is dosed at once. Geotextile fabric is on top of the rock, and capping the bed is 4 to 6 inches of topsoil.

Controlling the system is a pair of Infiltrator Aquaworx transducer panels. Tanks came from Fraserway Prekast. Rock came from Marno Trucking.

System Profile

Location: Abbotsford, British Columbia, Canada

Facility served: 2 homes

Designer: Cleartech Consulting, Vancouver

Installer: Canadian Septic, Langley, British Columbia

Type of system: Moving-bed bioreactor with sand bed and UV

Site conditions: Clay with a high water table

Hydraulic capacity: 1,572 gpd

A Volvo 145 excavator was used for digging and moving earth. Stiksma contracts for excavation work, which saves him the capital investment on heavy equipment. Also hired for the project was a truck with a Telebelt telescoping conveyor from WestCoast Telebelts Ltd.

Too wet

The old system was undersized, Stiksma says, and the drainfield had been installed with only about 3 inches of topsoil over the drain rock. Even four years ago pipe was visible in the trenches, he says. “By the time we were there to do replacement, when the pumps kicked on you had the Bellagio fountain going.”

SYSTEM PROFILE

» A conveyor truck from WestCoast Telebelts adds topsoil to the sand bed at the Abbotsford, British Columbia, project. Using the Telebelt minimized compaction, and it also kept equipment from getting stuck in very wet soils on the property.



» The sand bed in Abbotsford, British Columbia, is complete with topsoil. It's 30 feet wide, 203 feet long.

“By the time we were there to do replacement, **when the pumps kicked on you had the Bellagio fountain going.**”

James Stikma

In addition, he says, the system was also taking wastewater from toilets serving workers in the barns. “So there was some additional flow it was not designed for.”

Although he is licensed to design Type 1 and 2 systems, Stikma saw from the start that an engineer had to be involved. “When we dug our test pits, I think we had water coming in 8 to 12 inches below finished grade,” he says.

Under British Columbia rules, this is a Type 3 system, which meets the highest standards. Effluent must have less than 10 mg/L TSS, five-day BOD less than 10 mg/L, and median fecal coliform density less than 400 colony forming units per 100 mL.

(Type 1 systems consist of a septic tank, sized for three times the daily flow, followed by a drainfield. BOD must be between 150 and 300 mg/L, and TSS must be between 50 and 80 mg/L). Type 2 systems produce effluent with less than 45 mg/L TSS and five-day BOD less than 45 mg/L.)

Telehandler benefits

Removing the old drainfield meant dealing with that high water table. “It was so soupy, we ended up needing to install a roadway with some 3-inch minus (gravel) to get back there to pull out the old field.”

Because the Telebelt could sit on slightly higher parts of the site, other trucks didn't get stuck, Stikma says. But the main reason for using the Telebelt was to minimize traffic and compaction of the sand bed. It was an expensive truck to hire, so he made sure everything was lined up before it arrived.

To build the bed, Stikma's crew started by removing part of their roadway. The remainder supported the Telebelt while it spread the first



30% of material for the bed. On the second day, the crew removed the remainder of the road, and the Telebelt truck repositioned to the driveway. From there, its 100-foot arm could reach the remaining 70% of the bed. About 25 truckloads of material were used, most during the two days when the Telebelt was on site.

Before the project, Stikma installed observation tubes to track groundwater levels. Two are in the toes of the mound and go down to native soil. Two stop at the bottom of the drain rock trench. He left the tubes in place. “We cut them down flush to grade and put a little 6-inch round cover over the top. When it's time to do maintenance, someone is supposed to take a peek in there and see if there's ponding or any issues that need addressing. It makes diagnosing problems a heck of a lot easier.”

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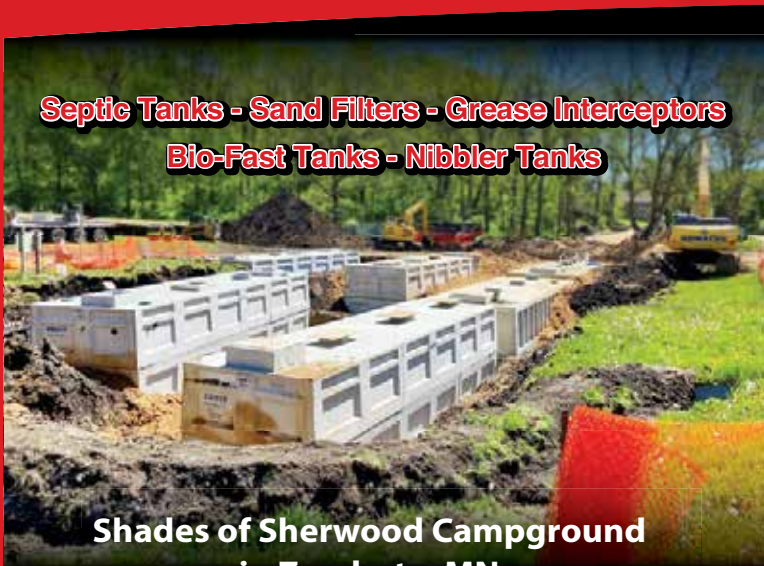


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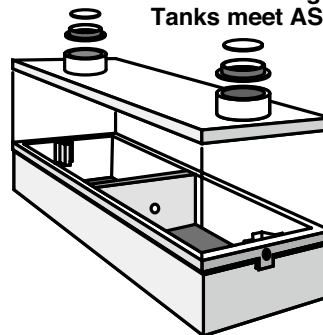
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"Abbotsford's done a really good job of running city water to all different areas. So the power can go out, and now all your (septic system) pumps don't work, but you can still put water into your system."

James Stiksma

Performance update

After six months of operation, the system is producing BOD of 9 mg/L (target <10), fecal coliform of 450 CFU/100 ml (target <400), and TSS of <2 mg/L (target <10).

Stiksma also hired a hydro-excavator for this job. Water and gas lines were in the area where some tanks would go, but a locator service couldn't trace the lines completely, he says. Hydroexcavation bored a series of 12-inch location holes. It cost about \$1,200, but removed the danger of nicking a pipe, he says. □

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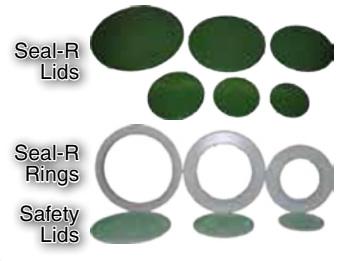
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contains three auxiliary 120-volt output circuits for external device control relays. They include three low-voltage auxiliary input circuits selectable for N/O or N/C alarm inputs. An integrated pump power control relay is automatically disabled in an auxiliary device alarm condition. A signal array includes a power indicator LED and four equipment alarm indicator LEDs. **800-321-6960; www.jetincorp.com**

SJE Rhombus Model 32S

The **Model 32S** control panel from **SJE Rhombus** is designed to alternately control two three-phase pumps in industrial and commercial water and sewage systems using the DPC-4F Pump Control Four Float Controller for pump sequence, alternation, selection, lag pump delay time, and alarm. If a high-water alarm condition occurs, the high-water alarm float activates the audible/visual alarm system along with auxiliary contacts for remote alarm. Common applications include lift stations and pump chambers. Models are available with intrinsically safe relay for circuit extension into hazardous locations. It is UL/cUL Listed. **888-342-5753; www.sjrhombus.com**



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SPI 50B019-120-240DD

The **50B019-120-240DD** control panel from **SPI** is a duplex timed-dosing panel for residential or commercial applications. It can be used with 120- or 240-volt power, and accommodates two dosing pumps controlled by a repeat-cycle timer. It has a durable, weather-resistant, NEMA 4X polycarbonate enclosure with SST latches; large, easy-to-access terminal block; circuit breakers for the pumps and control circuits; a rugged, externally mounted, UV-resistant alarm light; audible alarm and run-mute-test switch with UV-resistant sealing boot; definite purpose motor contactors; alternating relay; and pump hand-off-auto switches. Compressor hookups are available. Wiring schematic and detailed connection diagrams are provided, as well as mounting feet for the enclosure. It is UL listed. **419-282-5933; www.septicproducts.com**



FILTER MEDIA

E-Z Treat

The **E-Z Treat** recirculating synthetic media filter compliments multiple applications of flows from 100 to 100,000 gpd. It is engineered for a variety of wastewater solutions, including single and multifamily residences, RV parks, campgrounds, schools, churches, restaurants and convenience stores. It was developed by direction of the U.S. EPA's Onsite Wastewater Treatment Systems Technology manual for advanced secondary treatment. This technology is NSF 40/245/350 tested and approved. It is a simple, self-contained system that includes one or more units, a recirculation pump, control panel, floats and a bypass valve. **703-753-4770; www.eztreat.net**



NITROGEN REDUCTION SYSTEMS

BioMicrobics HighStrengthFAST

HighStrengthFAST wastewater treatment systems from **BioMicrobics** are scalable wastewater solutions for commercial properties of all sizes. They are engineered to treat wastewater containing high BOD concentrations and often having higher FOG levels than standard sanitary-strength sewage. Models are available to treat 900 to 9,000 gpd and are designed for extreme environments such as specialty food/beverage/agriculture applications. **800-753-3278; www.biomicrobics.com**



Norweco Singulair HK Green

The **Singulair HK Green** wastewater treatment system from **Norweco** is designed for areas requiring significant and consistent reduction of total nitrogen. The hybrid system combines suspended and attached growth biological processes, and consists of pretreatment, anoxic, aeration and clarification chambers, followed by the Bio-Film Reactor. It uses an extended aeration process to treat wastewater and features technology to enhance or optimize denitrification. Wastewater in the system undergoes a 70-hour retention to ensure adequate exposure to all treatment processes. **800-667-9326; www.norweco.com**



PUMPS

Crane Pumps & Systems Barnes RAZOR

The 2 hp **Barnes RAZOR** grinder pump from **Crane Pumps & Systems** is suitable for light commercial and residential solids-handling applications, according to the maker. It is designed with axial cutting technology to reduce solids like flushable wipes, diapers and other nonbiodegradable items. A single tool is needed for disassembly. The plug-and-play cord also provides easy servicing without requiring removal of epoxy in the conduit. Its 1.25-inch discharge is suitable for preconfigured packaged systems and turnkey solutions. It is available in the Barnes EcoTRAN Pressure Sewer System for grinding in tough terrain. Numerous configuration options are available. **937-778-8947; www.cranepumps.com**



Franklin Electric FPS NCX Series

The **NCX Series** of explosion-proof submersible non-clog pumps from **FPS, a brand of Franklin Electric**, are certified for use in Class 1, Division 1 and Group C and D hazardous location requirements for municipal markets as well as any commercial or industrial application that requires an explosion-proof rating. The pumps are available in single- and three-phase power options to accommodate flows up to 625 gpm. Each unit is designed for serviceability and reliability with features including a field-adjustable wear plate, factory-standard dual-silicon carbide mechanical seals and chemical-resistant components. **866-271-2859; www.franklinengineered.com**



Hiblow USA rebuild kits

Hiblow USA HP-60/80 rebuild kits have logos on both the diaphragms and the casing blocks. Parts with the logo are authentic and genuine factory certified. In the future, all diaphragms will have the logo to mark the authenticity of the rebuild kit. The HP-100/120



kits with logos are next and will be in circulation sometime in 2023. The company recommends rebuilding the pump two times before buying a new one. Rebuilds with authentic parts should extend the life of the pump for years. 734-944-5032; www.hiblow-usa.com

Liberty Pumps ProVore

The **ProVore** grinder from **Liberty Pumps** is designed for use in applications where addition of a bathroom or other fixtures below sewer lines requires pumping. It has the same V-Slice cutter technology used in the Omnivore Series. Powered by a 1 hp motor, this smaller grinder is designed to operate on a standard 115- or 230-volt circuit, requiring only a 20-amp breaker. No special wiring is needed. The pump comes with a 2-inch vertical-style discharge and a standard leg pattern matching the LE Series. This allows for easy retrofit into existing systems. Compact factory-assembled systems are available in simplex and duplex versions: the ProVore 380 and ProVore 680. 800-543-2550; www.libertypumps.com



Polylok PL-CPE4A

The **Polylok PL-CPE4A** is a submersible, 4/10 hp, 115-volt, single-phase effluent pump with a 2-inch NPT vertical discharge. It has a maximum head of 38 feet and a maximum flow of 56 gpm. The pump is designed with a 3,450 rpm oil-filled permanent split-capacitor motor and has an amp rating of 6.6 for 115 volts, a rugged cast iron housing and volute equipped with a cast iron vortex impeller capable of passing 3/4-inch-diameter solids. The stainless steel shaft is supported by two single-row, oil-lubricated ball bearings. The shaft seal is an inboard design with a secondary Exclusion V seal. It has a 20-foot UL/CSA-listed power cable suitable for submersible service and fitted with a three-prong plug. The unit is supplied with an integrated clip for the included piggyback mechanical float switch and used for automatic operation. 888-765-9565; www.polylok.com



WASTEWATER REUSE SYSTEM

Anua AiraSymBIO

AiraSymBIO from **Anua** is an onsite, closed-loop odor treatment system that filters and then treats raw wastewater for use as the irrigation water in the multistage biological odor treatment system. The system utilizes a water resource already present, thus reducing operating costs, uses no freshwater, and allows the biological odor control system to function as intended, as many areas around the country do not have potable water available at the lift or pump station site or have water conservation initiatives in place, which prohibits the use of biological treatment technologies. 346-225-8033; www.anuainternational.com □



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Large-Scale and Commercial Treatment Systems

By Craig Mandli

Package Treatment Plant solves college's treatment needs



Problem: Lancaster County Career and Technology Center's Brownstown Campus in Ephrata, Pennsylvania, had an aging wastewater treatment facility in operation since the early 1990s. With new permit requirements in process and the outdated infrastructure at risk of non-compliance, the school determined it was time for the system to be upgraded. The new system needed to serve the wastewater treatment needs of the facility today based on the current PA DEP NPDES permit and future growth.

Solution: Project Engineer Buchart Horn selected an epoxy-coated steel ENVIRO-AIRE Package Treatment Plant from Delta Treatment Systems for the 4,300-gallon wastewater treatment system. Each plant is custom designed for the sewage treatment needs of the location, custom-built at the factory, and shipped to the project site as a self-contained unit requiring minimal assembly. The system can convert flows of 3,000 to 250,000 gpd into clear, odor-free effluent suitable for direct discharge. The treatment train's design for the full build out included a Bardenpho process with flow equalization, a pre-anoxic tank, aeration tank, post-anoxic tank, polishing tank, dual-hopper clarifiers, solids holding tank and disinfection. This system discharges directly into the Conestoga River adjacent to the property.

Result: The installation was completed by DESCCO Design & Construction of Fleetwood, Pennsylvania. The simplicity, minimal installation time, and cost of a prepackaged treatment solution were important to the college. 800-219-9183; www.deltatreatment.com

System helps meet facility's expansion needs



Problem: Columbine Inn is employee housing for 71 residents that work in the Ski Valley of New Mexico. Expansion was needed. Overall design for daily flow was drainfield space and legal treatment soil limited due to drinking-water well setback regulations and soil texture. Ultimately a 33% reduction in daily flow was needed.

Solution: Waste Management Associates in Santa Fe was able to design a system using two FujiClean USA CEN21 models and creative pressurized drainfields to meet the expansion needs. All sewage flows to an upgraded wastewater treatment system. Existing septic and graywater tanks were reconfigured for primary settling and flow equalization. Secondary and tertiary treatment are done in the pair of CEN21 systems, each having a treatment capacity of 1,900 gpd. CEN systems are designed to utilize a small footprint while providing superior treatment and nitrogen reduction. Tertiary effluent enters final pump tanks. Total residence time for emergency built into the system is 7.6 days. Accounting for both precipitation and effluent disposal, the system uses shallow discharge disperse over 8,000 square feet. This is approximately 40% excess absorption capacity over code. A new drip system was installed per specifications including anti-freeze precautions. Though the drip system could be operated year-round, when soil temperatures go below freezing, a Low Pressure Pipe system will take over automatically. The old gravity drainfield is passively retained to act as an emergency disposal during power outage or some unforeseen problem.

Result: In mid-year 2021, the system was installed and has been operating above expectations. As-built drawings and operation documents were generated to aid monthly routine maintenance personnel and document any installation details. 207-406-2927; www.fujicleanusa.com

Treatment system enables fall festival to continue



Problem: Pond Hill Farm, a popular spot on northern Michigan's fall color tour, faced a public relations nightmare when its annual pumpkin festival was ruined by a septic failure. The pumpkins were sitting on their leachfield, and a surface breakout contaminated the pumpkins, forcing the health department to issue a pumpkin recall. The farm wanted to prevent a similar situation in the future.

Solution: SludgeHammer installed an Aerobic Bacterial Generator in the existing septic tanks to quickly remediate the failed leachfield, but Pond Hill was expanding with a brewery, winery, restaurant and thousands of visitors would overwhelm treatment capacity. So extra tanks were added with full-scale SludgeHammer treatment to get the effluent clear enough for subsurface drip disposal. The farm installed a 3,000-square-foot drip irrigation field and dedicated it to a pumpkin patch.


Result: The latest samples showed BOD at <2 mg/L, TSS at 2 mg/l, and total inorganic nitrogen at 6.49 mg/l. Even with the substantial reduction in nitrogen, the pumpkins now get a micro-dose of fertilizer with every drop of water. The farm now grows the largest pumpkins it has ever produced with the same effluent that caused the problem. And as an added benefit, a portion of the field is used to grow self-pick flowers for customer bouquets, producing extra revenue from waste. 231-348-5866; www.sludgehammer.net

Pretreating high-strength waste at orchard and winery



Problem: In 2017, after one year of monitoring by the local county health department and the State Department of Health, it was determined that the waste strength loading was too high at Huber's Orchard and Winery in Starlight, Indiana. A new mound system and an additional pretreatment system was needed to lower the waste strength prior to discharge to the mounds.

Solution: Zoeller Pump offered design assistance and components for a new mound system to treat wastewater from numerous structures. The company recommended a recirculating media filter treatment system installed between existing septic tanks and the mound system. RMF treatment systems are similar to recirculating sand filters with the main difference being the size of the treatment media, which is typically 3/8-inch diameter pea gravel instead of sand media. A local engineer designed the new RMF at 4,000 gpd using a waste strength of approximately 700 mg/L BOD₅, which required a 30-by-30-foot RMF. Commissioning of the RMF was done in October 2019.

Result: After one month, the new RMF was treating wastewater efficiently, meeting the objective of effectively pretreating effluent prior to discharge to the mound system. Samples collected averaged 10.5 mg/L BOD₅ and 2.3 mg/L TSS. 502-778-2731; www.zoellerpumps.com 

Wastewater Professionals Need to Know Their Worth

New Mexico pumper Mike Krepfl:
 "We are a critical part of day-to-day life for people."

Compiled by Betty Dageforde

In Snapshot, we talk to a member of a state, provincial or national trade association in the decentralized wastewater industry. This time we visit a member of the Professional Onsite Wastewater Reuse Association of New Mexico.

Mike Krepfl owner and president

Business: AAA Pumping, Albuquerque, New Mexico

Age: 49

Services we offer: About 40% of our business is septic work. We pump septic tanks, grease traps and sand traps and do inspections for real estate transactions. The other 60% of our work is portable restroom rentals. Today we run about 30 trucks between the two divisions.

Years in the industry: I'm a third-generation owner of the company. My grandfather Carl Krepfl started the business out of his house in the 1950s, then my father Tip Krepfl took over. So I've been around it my whole life but didn't go full time until 1996 after I graduated from New Mexico State University with a degree in business administration.

Association involvement:

We've been members of the Professional Onsite Wastewater Reuse Association of New Mexico for about 20 years. Most of what I get out of it is the education and training that's offered.

Biggest issue facing your association right now:

The biggest challenge for us at the moment is increasing our membership. We need higher enrollment and getting more people onboard.

Our crew includes:

My wife Shelley is our office manager. Our general manager is Raul Rivera. The three office dispatchers are Darla Romero, Amber Babecka and Candy Matthews. We have eight technicians on the septic side and about the same number for portable restrooms.



▲ Raul Rivera, general manager; Darla Romero, portable restroom dispatcher; Candy Matthews, grease dispatcher; Amber Babecka, septic and sand dispatcher; Shelley Krepfl, office manager; Mike Krepfl, president.

Typical day on the job:

I wear many hats. I work with the managers and staff to ensure we're operating efficiently. I'm also involved in the larger account sales calls. And for the last two years I've been doing a lot of recruiting, trying to find different ways of attracting qualified employees. It's been tough. We're doing everything we can think of — advertising, offering bonuses, different forms of compensation, providing newer equipment.

The job I'll never forget:

We had a project in northern New Mexico pumping a lagoon in a mine. It was very high elevation, up in the mountains. The trucks were a long distance away from the lagoon. It was very challenging. We had to use lots of hose and secondary pumps that were stationed periodically after so many feet of hose. We had to find a flat area above the lagoon and then run hoses down the hill. It was a lot of gallons. It took several weeks and is probably the most difficult pumping job we've ever done.

continued >>

» A Peterbilt truck with a Dragon 6,300-gallon tanker, and a Freightliner with a 5,500-gallon Galyean tanker.



My favorite piece of equipment:

We have a 1980 Mack dump truck that my dad used to drive before he retired in 2006. It has the original engine and transmission. We don't use it daily but it's still operational. We use it to haul dirt. I love that truck because of the value we got out of it compared to the newer trucks that are much more expensive and problematic and unreliable.

Most challenging site I've worked on:

We used to install drainfields, some of which were on bedrock sites that would require blasting. Typically those were mountain sites with really bad soil or rock. We didn't do the blasting ourselves but I used to wonder if the house was going to crack in half. After the blasting was done, we'd have to remove some of the rock and put sand in. Those projects were a nightmare.

Oops, I wish I could take this one back:

Pumping car washes, sand traps or grease traps that haven't been serviced regularly is always a bad situation. We show up and it's just a solid tank of dirt or concrete grease. We've gotten to where we won't even service those sites unless the owner has a contract with us to maintain it on a regular basis. Any time I do take one of those jobs for somebody for some reason it's usually a nightmare and I end up regretting it.

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

We had a woman call this past year wondering if we could pump out the water in her hot tub because her husband had died in it. We passed on that job.

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

I think septic inspections should be done by a true impartial third party, not the company who's going to do the repair work. In my mind, there's a conflict of interest there.

Best piece of small business advice I've heard:

The way we operate is we try to treat every customer like we'd want to be treated.

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

I'm interested in real estate and have been doing a little bit of flipping houses and apartment buildings — buying older units, fixing them up and selling them, particularly older apartment complexes. It's been pretty interesting.

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

The people in our industry need to realize that we are a very essential service. I think it's starting to happen. We are a critical part of day-to-day life for people. □

Would you like to see someone in your state or provincial wastewater trade association profiled in Snapshot?

Send your suggestions to Jim Kneiszel at editor@onsiteinstaller.com.

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If you would like your wastewater trade association added to this list, send contact information to editor@onsiteinstaller.com

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

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Georgia Onsite Wastewater Association;
www.georgiaonsitewastewater.com; 706-407-2552

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IDAHO

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www.owaidaho.org; 208-664-2133

ILLINOIS

Onsite Wastewater Professionals of Illinois;
www.owpi.org

INDIANA

Indiana Onsite Waste Water Professionals Association;
www.iowpa.org; 317-965-1859

IOWA

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

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

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Kentucky Onsite Wastewater Association;
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Maine Association of Site Evaluators;
www.maineese.com

MAINE

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

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Maryland Onsite Wastewater Professionals Association;
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Mississippi Pumpers Association;
www.msumpersassociation.com; 601-249-2066

MISSOURI

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

NEBRASKA

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

NEW ENGLAND

Yankee Onsite Wastewater Association; (Massachusetts, Connecticut, Maine, New Hampshire, Rhode Island and Vermont)
www.yankeeonsite.org; 781-939-5710

NEW HAMPSHIRE

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

Granite State Onsite Wastewater Association;
www.gsdia.org; 603-228-1231

NEW MEXICO

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

NEW YORK

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

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www.o2wa.org; 541-389-6692

PENNSYLVANIA

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

Pennsylvania Onsite Wastewater Recycling Association;
www.powra.org

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

TENNESSEE

Tennessee Onsite Wastewater Association;
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TEXAS

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

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Utah Onsite Wastewater Association (UOWA); www.utahonsite.org; 385-501-9580

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Ontario Onsite Wastewater Association;
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PRODUCT NEWS

PRODUCT SPOTLIGHT

Digital hub helps contractors make sense of telematics

By Craig Mandli

Technology has made mountains of telematics data available at your fingertips. But how do you interpret it? How do you make it work to run your onsite system business more efficiently? What if you could monitor the health of your entire mixed-equipment fleet from one dashboard, receive maintenance alerts on your phone, and order parts without searching through manuals? You can with Komatsu's comprehensive digital hub, My Komatsu.

My Komatsu gives contractors easy-to-interpret visual analyses of data collected from numerous sources displayed on easy-to-read dashboards. It can pull data from Komtrax, Komtrax Plus, ISO API 15143-3 (AEMP 2.0) data from other OEMs, or other direct data sources and provide powerful analytics to help contractors manage a varied fleet and drive business without managing multiple IDs and passwords.

"Komatsu understands that our customers are busy and expect technology to be easy to use," says Matthew Beinlich, director of digital support solutions for Komatsu. "Starting today, our customers can get the most important telematics data, such as location, hours, fuel consumption, idle ratio and production, from My Komatsu for many of the other brands of equipment they may operate."

The system has been designed to make it easy to collect, visualize and monitor telematics data. It lets users quickly view and manage data on one dashboard, receive maintenance alerts and order parts, troubleshoot to help minimize downtime, monitor for theft and unauthorized use, benchmark machine performance, track fuel consumption, and manage fuel efficiency.

With the ISO-15143-3 (AEMP 2.0) telematic API (application programming interface), computer code allows fleet managers to integrate new telematics digital information into existing fleet management systems. With this functionality, fleet managers can view telematics data for Komatsu and non-Komatsu machines to visualize the complete fleet, pull operation reports and set alerts.

"Simply enter the ISO 15143-3 API credentials for those brands into My Komatsu once, and you'll no longer need to log into each OEM's system separately each day," says Beinlich. Instead, data generated by the equipment (Komatsu or non-Komatsu) flows to Komtrax data storage. ISO 15143-3 (AEMP 2.0) facilitates the extraction and raw data to the choice of database. ISO integration and analytics are currently standard features with a My Komatsu registration. **847-437-5800; www.komatsuamerica.com** □



Complaints Arise From Proposed Stricter Onsite Regulations in Massachusetts

By David Steinkraus

Proposed changes to the Massachusetts Title 5 onsite rules were met with opposition from the public and local government officials over the timeline and cost of the proposed rules that would designate nitrogen-sensitive areas.

Towns in targeted areas would have to upgrade to nitrogen-reducing systems within five years after the state Department of Environmental Protection regulation is finalized. Towns would have to use the best available technology, but that could include nontraditional technologies such as permeable reactive barriers filled with wood chips to remove nitrogen as water flows through. Towns may also be able to apply for watershed permits, which would extend the deadline for upgrades to 20 years.

Local officials and some residents said they were dismayed at the possibility of imposing so much cost on people within such a short time.

Two state legislators, Rep. Chris Markey, D-Dartmouth, and Sen. Mark Montigny, D-New Bedford, wrote a letter asking the department to slow implementation of the proposed rules, and they questioned the evidence behind it. In Dartmouth, they wrote, only 29% of total nitrogen in the Slocum River is from onsite systems, while in the Westport River onsite contributes only 34%. The rest is from private industry such as composting, they wrote.

* * *

Rules are changing for inspection reports and payment in Mashpee, Massachusetts, following a vote by the board of health. Both must now be submitted to the department within 30 days after inspections, reported The Enterprise of Falmouth, Massachusetts. Homeowners must pay for the town's review of their inspection, and if payment is not submitted within 30 days, there will be no review, and the inspection will have to be repeated.

The town will also no longer accept hand-drawn sketches from installers. They must now submit as-built diagrams.

Vermont

The state provided another round of funding to low- and moderate-income residents who need to repair or replace onsite systems.

Eligible residents were required to have a failed or inadequate onsite wastewater system, own and live in a single-family residence or a multi-family building with up to four units, and have an annual household income less than \$80,835.

Money for the work came from the American Rescue Plan Act and will pay for about 150 to 200 projects. The \$5 million in first-round funding is now being distributed to more than 180 homeowners.

More information is available on the state website: www.anr.vermont.gov/content/applications-now-open-homeowners-fix-failed-wells-and-septic-systems.

Maryland

The state has approved \$2.13 million from the Bay Restoration Fund so counties can upgrade onsite wastewater systems to reduce nitrogen discharges. Nitrogen is one of the more serious pollutants in Chesapeake Bay, and the funding will affect 18 counties, news reports said.

Washington State

The Asotin County Public Health District is considering new rules for onsite systems. Under a proposal, lots less than 12,500 square feet will have to meet specific standards before a septic system is allowed. Also, systems will have to be inspected when a property is sold. The intention is to add teeth to rules, Colling Jurries, the environmental health specialist for the district, told the *Lewiston Tribune*, of Lewiston, Idaho.

About 60% of the county's population uses onsite systems, and homeowners will be encouraged to keep records of drainfield maps with the health district.

Mississippi

Haulers may see a significant increase in fees to dump septage at the wastewater treatment plant in McComb, Mississippi. City Administrator David Myers is proposing \$40 per thousand gallons instead of the current \$7.

Myers said he thought about increasing the cost after learning a hauler was driving the 81 miles from Richland to dump at the McComb plant.

"The McComb wastewater treatment plant is only one of the few that allows this type of dumping so that's to our advantage," he said, according to the *Enterprise-Journal* of McComb. "That's the reason why they were coming is we had some of the lowest prices in this area to dump septic and other stuff."

Myers said the city isn't making much money because the fee is so low. "I think that now we're going to generate a lot more," he said. "We're doing a service for these folks allowing them to come and dump in our plant."

Michigan

The owner of a septage hauling company was sentenced to 6 months in jail and fined \$755 for illegally applying septage to farm fields. In December 2020, the Saginaw County Health Department received reports of trucks emptying septage onto fields, said a story from WNEM News in Saginaw. The company owner said the trucks were spreading water from underground tanks, but health inspectors found septage waste where the trucks had been. In April 2021 the owner was charged with a misdemeanor count of land applying septic waste. In September 2022 he pleaded guilty.

The health department said the company had been investigated for the same issue in May 2020. The news report did not name the hauling company or the owner. □

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