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**PUMPS
DIRECTORY**
See page 30

BASIC TRAINING:
Site evaluation tips p. 28

SNAPSHOT:
Image is
important
p. 18

IT'S A WILD RIDE

Extreme weather, tough topography and unpredictable soil profiles lead the list of many challenges faced by Alaskan wastewater professionals p. 10

SYSTEM PROFILE
Adding an accessory
dwelling
p. 24



PRODUCT FOCUS
Pumps p. 36

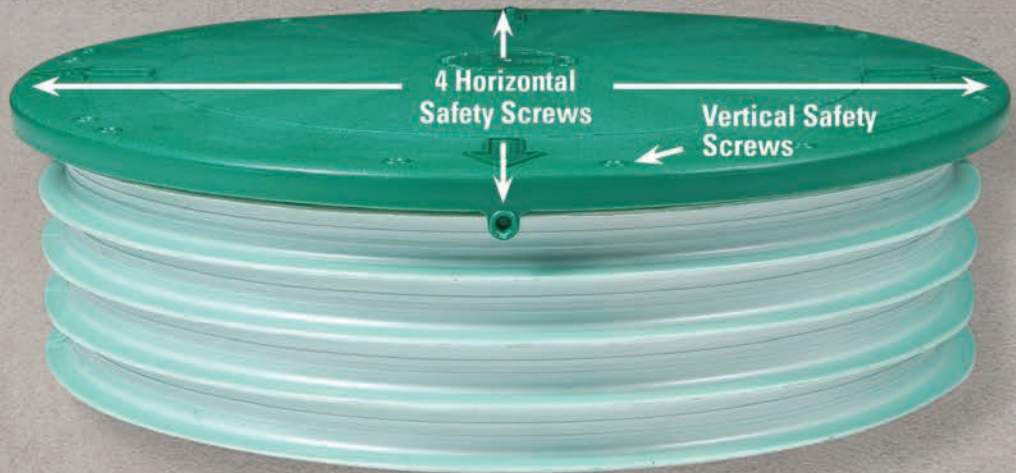


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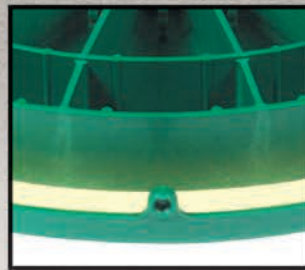
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INSTALLER PROFILE:

It's a Wild Ride

By Tim Dobbins

ON THE COVER:

Many installing challenges face the team at ARM Services in rugged Anchorage, Alaska. Managing members Rob and Mariah Campbell are show on a job site with their Cat 308CR excavator. (Photo by Josh Corbett)

6 Editor's Notebook: Learning the Industry In the "Show Me" State

The onsite wastewater Mega-Conference provides many opportunities for education, networking and seeing the latest and greatest treatment products.

By Jim Kneiszel

8 @onsiteinstaller.com

Be sure to check out our exclusive online content.

18 Snapshot: Educate Customers and Protect Our Image

We must crack down on pumpers who cut corners and give a bad reputation to the wastewater industry

20 Rules and Regs: Montana Water Quality Standard Runs Into Problems With EPA Officials

By David Steinkraus

24 System Profile: Double Dwelling

Aerobics and a seepage pit provide the answer to serve a main house and mother-in-law cottage on a compact California lot.

By David Steinkraus

28 Basic Training: Take Your Time During Site Evaluation Process

If you start with bad soils data, the risk is high for design flaws that will cripple your new system.

By Jim Anderson and Dave Gustafson

30 Pumps Directory

32 Opinion: EPA MOU Partners Promote Infrastructure Advances During SepticSmart Week

By Mary Clark

34 Associations List

35 Industry News

36 Product Focus: Pumps

By Craig Mandli

39 Case Study: Pumps

By Craig Mandli

40 Product Spotlight: Customers prompted the feature set of new Pro4 onsite chamber system

By Tim Dobbins

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Coming Next Month

ISSUE FOCUS: NOWRA Show Issue, Systems Repair/Drainfield Rejuvenation

Basic Training: Using soil survey data in the field

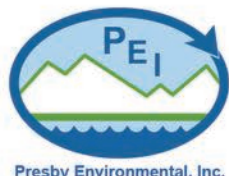
System Profile: Elevated mound for a lakefront cottage

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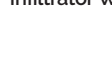
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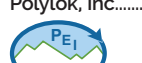





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ADVERTISER INDEX

September 2022

	Alita Industries, Inc.	33
	Ashland Pump	8
	BioMicrobics, Inc.	35
	BioRock	9
	BrenLin Company, Inc.	27
	Crane Pumps & Systems	13
	Crest Precast, Inc.	33
	Eljen Corporation	17
	Fuji Clean USA	31
	Infiltrator Water Technologies, LLC	3

	Jet, Inc.	21
	Kistner Concrete Products, Inc.	27
	National Precast Concrete Association	42
	Norweco, Inc.	43
	Polylok, Inc.	44
	Presby Environmental	5
	Prinsco	22, 23
	Roth North America	19
	Sim/Tech Filter Inc.	29
	Simple Solutions Distributing LLC	39

	SJE Rhombus®	21
	SPI, Inc.	27
	T&T Tools, Inc.	29
	The Dirty Bird	39
	The Shaddix Company, Inc.	39
	TUF-TITE, Inc.	2
	Wholesale Septic Supply	15
	Wieser Concrete	7
	WWETT Show	41
	Classifieds	40



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

Learning the Industry In the “Show Me” State

The onsite wastewater Mega-Conference provides many opportunities for education, networking and seeing the latest and greatest treatment products

Coming off the COVID-19 pandemic and amid a period of great customer demand for professional wastewater services, remember to take time to learn and grow in the onsite industry. That's why planners say it's more important than ever for installers to attend the fall staple Onsite Wastewater Mega-Conference this year, scheduled for Oct 30-Nov. 2 in Springfield, Missouri.

This year's Mega-Conference is a joint effort between the National Onsite Wastewater Recycling Association, the National Association of Wastewater Technicians, the State Onsite Regulators Association, and the Missouri Smallflows Organization. Since 2015, the national groups, with the help of a state organization, have worked together to provide education on topics of importance to wastewater professionals, continuing education credits and field trips to scope out regional onsite wastewater challenges.

There are a number of great reasons to take part, not the least of which is the changing workforce demographics in our industry and the need to educate, network with and encourage the newcomers who will help fortify environmental protection efforts for the millions of folks in the U.S. who rely on decentralized wastewater treatment in their daily lives.

FRESH FACES NEEDED

Sara Heger, PhD., president of NOWRA and an onsite trainer though her work with the Water Resource Center at the University of Minnesota, recognizes the aging of the onsite community. But she says she is noticing a change through her work at the Mega-Conference.

"I know when I'm doing training and look across the room, I feel like it is shifting a little bit. I feel like I see more young people, but it seems like the average age is still up there," she says.

Tammy Trantham, executive director of MSO and chair of the Mega-Conference, agrees. She says many in her organization talk about retiring soon or they would like to slow down as new people come up and take over. At the same time, she is seeing fresh faces, and conferences like this one provide much-needed networking and education opportunities.

"It's definitely an issue in Missouri. We've seen many in the industry aging out and new people coming in. That's where training has become very important and our organization has been very busy with courses to get people up to speed and learning new technologies."

"To me, the installers, designers and service providers are the top 10%, **the ones looking to grow their businesses and those excited about new technologies and new ideas.**"

Sara Heger

This is the 8th annual Mega-Conference. The event was held virtually in 2020, but then came back in-person in San Marcos, Texas, last year.

The event moves around the country every year to give more folks the chance to attend. It generally attracts 500 to 600 participants, but about half usually reside within driving distance to the host location, Heger says. As such, the local group provides a track of education seminars touching on onsite treatment issues important to the region with a goal of providing required continuing education credits, CEUs and to expose a national audience to unique treatment challenges.

INSPECTION FOCUS

In addition to a track being planned by MSO, NOWRA will present three education tracks and NAWT is also providing seminars for service providers that will likely tie into training topics being planned for the 2023 WWETT Show.

NAWT President Kim Seipp said there will be a concentration on inspections to meet an increasing demand for system monitoring. She used her home state of Colorado as an example, where time-of-sale inspection requirements started with one county in 2004 and have spread to 20 counties. Her own company, High Plains Sanitation Service, saw its inspection work jump to about 300 systems annually during COVID-19, and with no let-up in sight.

"With the amount of homes transferring across the country, it becomes more important every year," she says. "Inspections are the first step to management. Another thing (contractors) should be thinking about is working on operations and management contracts. Even a gravity system needs to

have a professional looking at it, because clearly the homeowners aren't doing it."

Through the involvement with SORA, 50-100 regulators typically attend, giving them a great chance to network with other wastewater professionals and see the latest treatment technologies on display. The bulk of onsite industry manufacturers show their systems and components in an exhibit hall at the conference.

KARST AND CAVES

Trantham explains the MSO seminar track will delve into unique geology and soils of the area, including how extensive underground cave systems in the region pose wastewater challenges. The area's karst topography of limestone and underground aquifers, and poor soils high in clay content call for a lot of advanced treatment systems, particularly drip and low-pressure pipe LPP solutions.

Enhancing the local interest, Day 3 of the conference will include two field trips being organized by the Missouri group. One tour will focus on viewing residential onsite systems, while the other will concentrate on larger commercial systems. The tours will also include a stop at the group's wastewater training center in Springfield and area caves, including the Fantastic Caverns, where Jeeps with trams pull visitors through a system of caves.

It all adds up to a valuable experience for both local installers and those who travel across the country.

"One thing I've learned by going to national conferences is that we all have the same problems," Trantham says. "I've learned so much from people in other states on how they approach problems in different ways."

GRANT PROGRAM

Attendees will hear from prominent speakers on policy issues, including representatives from the U.S. Environmental Protection Agency and the U.S. Department of Agriculture. Among the issues discussed will be the new emphasis on federal government funding for decentralized wastewater projects. Heger said the USDA Rural Decentralized Water Systems Grant Program will be a topic. That program is funding up to \$5 million in improvements for private systems, with the potential for greater support in the future.

Another NOWRA initiative will play a role in the seminars and networking. Heger explains that there has been a lot of interest shown in the Emerging Professionals program, reaching out to speakers who have worked in the industry for five years or less. She said it's important for the onsite veterans to be welcoming to new people.

Heger says that while only a small percentage of folks working in the onsite industry attend every year, it tends to be those who value staying ahead of education requirements, best practices and learning new technologies.

"To me, the installers, designers and service providers are the top 10%, the ones looking to grow their businesses and those excited about new technologies and new ideas," she says. In addition, local attendees get exposure to industry trends across the country. "It's almost like we bring the NOWRA show to them and this might only happen once in 10 years. They're excited to have outside speakers come in and share new ideas; to me that's the draw for people who can drive to Springfield."

TIME TO TRAVEL?

For those in Missouri and environs — as well as installers everywhere — I'd encourage you to make time for the Mega-Conference, your state association gathering, or the WWETT Show when your schedules allow. Time is at a premium, especially since the pandemic, I know. But I always think events like the Mega-Conference can energize you and your crew to learn new treatment techniques, bolster your networking and marketing efforts and see new products the industry has to offer.

At the time of this writing, the Mega-Conference sponsoring groups were still firming up plans for seminar tracks. For more up-to-date information on the Springfield conference, visit www.nowra.org. □

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IT'S A WILD RIDE

Extreme weather, tough topography and unpredictable soil profiles lead the list of many challenges faced by Alaskan wastewater professionals

By Tim Dobbins



It wasn't a snap decision for Rob and Mariah Campbell to enter Alaska's septic service industry. They were aware of the challenges they faced, but knew they had to try.

Rob's career in excavation and engineering began more than 20 years ago when he served as a civil engineering general contractor in Anchorage. Through that experience, he developed a liking for public communication and project management and saw an area of opportunity to create a positive image for the septic industry.

The couple took about two years to count the cost of starting out before finally pulling trigger on a business license for ARM Services in 2013. For the first two seasons, they moonlighted with ARM on evenings and weekends while Rob continued to work his full-time engineering job. "Our goal was to make it as smooth of a transition as possible for our family," he says.

Almost a decade later, ARM (the acronym for Alaska Rob Mariah) successfully serves Anchorage, as well as the region across the inlet called the Mat-Su Valley, making their service coverage most of south-central Alaska.

FORGING A NEW MARKET

The couple knew starting out was going to be a test. Even with more than enough business to go around in the heavily populated area, it was extremely competitive.

"It was a challenging market to break into because everything was bottom-dollar pricing. That was the value everyone was trying to compete on," Rob says. "We had to identify rather quickly that there's no way we're going to compete like that. That's where you must decide who you are and who you want to be, and hold that line, and be willing to lose a lot of jobs."

The Campbells stood their ground. The last thing they wanted was to sacrifice quality and integrity for cost. "We are usually one of the most



ARM Services

Anchorage, Alaska

Owners: Rob and Mariah Campbell

Founded: 2013

Employees: 6

Service area: South-central Alaska

Services: Septic system installation, pumping service, sewer camera inspections, jetting, thawing and pipe cleaning, repairs, soil testing

Website: www.armservicesak.com

expensive companies, but it takes money to do good quality work and have good quality guys," Rob says.

Recognition and success didn't come automatically with that philosophy. It took about five years to build a name for their business, but now they are known as a company people can trust, Rob says. And consequently, they have no shortage of work.

"You have to communicate with and educate clients to understand that there are more values to a product besides price," Rob says. "We've found a niche in going out there and treating people the way that we want to be treated, and it has been working really well."



▲ With direction from lead foreman Nathaniel Kurka, Mariah Campbell uses a Cat excavator to begin exposing a line for a new pump tank. (Photos by Josh Corbett)

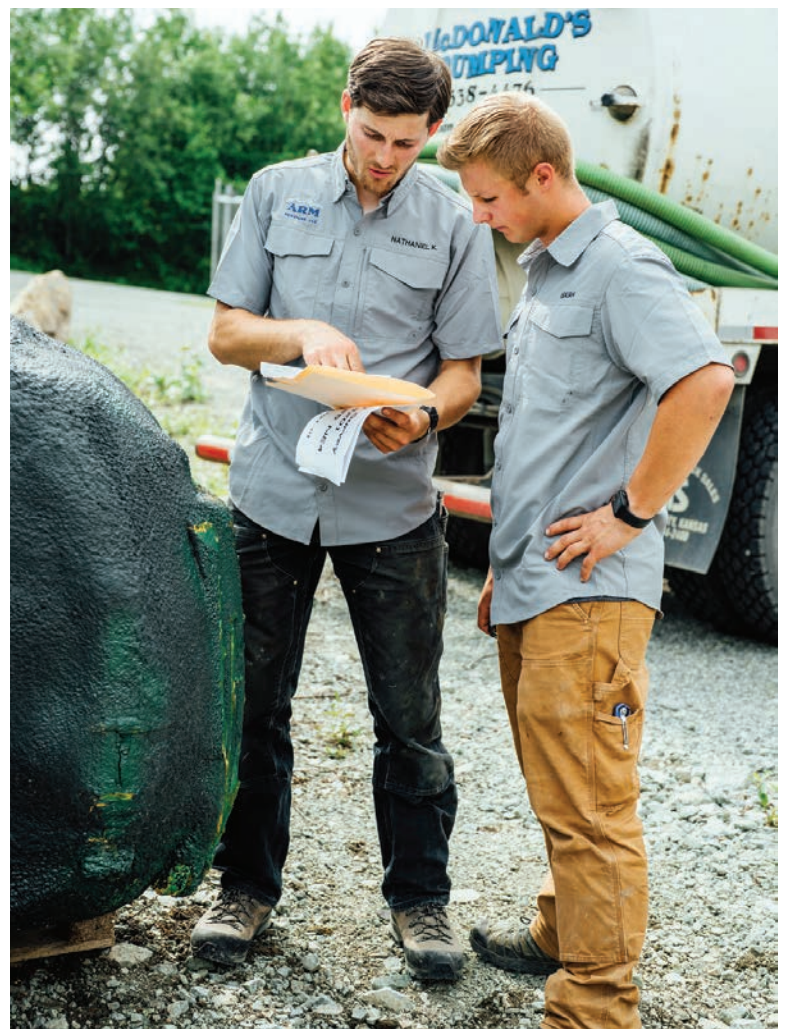
► Nathaniel Kurka and Isaiah Gall consult on a system install in Chugiak, Alaska.

FAMILY MATTERS

Though Rob and Mariah's business plan, decision-making and leadership are large reasons for ARM's success, they stress they wouldn't be where they are without their team. From the beginning, the Campbells knew hiring employees was about more than just filling positions.

"Mariah and I came up with a very strict hiring process. During the interview process we hold no punches," Rob says. "We let people know that this is a family company and a team of people that show up to work hard, but the reward and the return will be exceptional."

As of now, ARM's team is made up of Rob and Mariah at the helm managing four employees. Nathaniel Kurka is senior job foreman and septic specialist. Nathaniel Swanberg is a skilled technician, installer, vacuum truck driver, heavy equipment operator and he helps manage the maintenance and service side of the company. Aaron Elliot serves as a vacuum truck operator, excavation hand and sewer and drain technician. Isaiah Gall works primarily in the construction division.





◀ Aaron Elliot, left, and Nathaniel Swanberg load insulating panels for delivery. This can be an important component in onsite design in Alaska.

The couple says having a team they can trust is crucial, especially during times of personal hardship which they have recently endured. "We have had a fairly rough go lately," Rob says. "We lost three family members in the past few months and if we didn't have the team that we have, our business would have hurt, and been hurt bad.

"I cannot say enough about the guys that work for us," Rob continues. "They are so passionate about what they do and holding the line of integrity and quality, it makes an incredible experience for our customers."

BUYING OUT A FRIEND'S BUSINESS

A 20-year work relationship with a fellow sewer professional turned into an expansion opportunity for Rob and Mariah Campbell, owners of ARM Services.

The Campbells started ARM Services in 2013 after Rob had spent many years as a senior engineering consultant and construction superintendent. During his time as an engineer, he met Bill McDonald, owner of McDonald's Pumping Sewer & Drain.

After starting ARM Services, McDonald supported the couple completely and would often lend business advice. According to Campbell, McDonald and his wife Norma have been a symbol of integrity and good customer service since 1982.

"Mariah and I respect the heck out of them," he says. "For the past several years, Bill has gotten up every morning, started his truck or service van and put in 12- to 14-hour days."

A mutually beneficial relationship was formed as each company was eager and willing to lend a hand whenever called upon. "We supported him when he needed help and vice versa," Campbell says. "I remember when Bill called me a couple years ago saying, 'Hey bubba, I messed up.'"

At that time, nearly 80-year-old Bill went to the wrong house and accidentally got his snake stuck in the septic tank. "We dropped everything we were doing rushed over to his job to carefully hand-dig up the 4-foot-deep septic tank between a deck and a birch tree and extracted the snake," Campbell says.

Over the years, McDonald would often drop comments that the Campbells should buy him out some day, so when the time came, ARM Services did just that. "Mariah and I agreed to working on a plan and blueprints to buy him out, beginning with just giving Bill some breathing room and time off last year," Campbell says. "This eventually led to a full transition, and we've now acquired three additional vac trucks, a service vehicle and sewer and drain equipment."



▲ Bill and Norma McDonald, former owners of the business, are shown with Rob and Mariah Campbell. The truck is a Freightliner with a 3,600-gallon steel tank and Jurop XR 260 pump.

GIT 'R DONE

Besides a competitive market, the Land of the Midnight Sun creates a work environment filled with unpredictable weather, extreme winters and steep mountain terrain. Summers without darkness and winters with no light can take its toll and being successful in that setting comes down to preparation and diversifying services.

Because summer is so short, Rob says many companies tend to bite off more than they can chew and cram everything into five or six months. To avoid that predicament, they decided to diversify offerings so there is work for their crew no matter the time of year. ARM operates a service department, a maintenance division, construction division, pumping and tank cleaning services, and system installs and replacements, which currently make up about 75% of the total business.

"Depending on the year, we install 60-90 systems per year. Some years we see a much higher ratio of tank-only replacements, which are installed in less time than full systems," Rob says. "Other years we may take on several larger systems, taking multiple weeks to complete. We probably complete somewhere in the realm of 50 repairs per year."

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Pumping also makes up a significant number of hours with roughly 35 to 40 hours per week during the winter and around 80 to sometimes over 100 hours per week during the summer.

“Of course, the summer is most efficient and we make hay while the sun shines, but we work 365 days a year,” Rob says. “It’s more expensive in the wintertime and sometimes we have to thaw out frozen ground, but we get it done.”

SPRING THAW

The timing of the thaw will vary from year to year, but ARM will have 6 to 7 months of easier digging along the coast. Rob says there can be a lull in the springtime as things slowly thaw and they wait on things such as seasonal road weight restrictions to end. “Things inevitably go from 0 to 100 miles per hour overnight in the Alaska septic industry,” he says.

When thawing is necessary, methods depend on the project and severity of the frost. If frost measures roughly 1 to 3 feet deep, they rely on a diesel-fired ground thawing unit with rubber tubing and glycol, covered with insulated blankets. If it’s deeper, a steam thawing company with a commercial unit is called in to drive perforated steel rods into the ground and blast with steam for up to 24 hours.

Glacial activity in south-central Alaska left moraines, valleys and plateaus throughout the region, creating glacial till soil with consistency ranging from coarse gravel and large river rocks to finely ground silts and clays. “Our soil types, groundwater levels and overall site conditions can vary completely from one property to the next. This might even include when the lots are next door to each other,” Rob says.

“The biggest challenge is balancing a good marriage, a healthy family life and a successful business. What good is it if our septic business is the most successful business ever, but we run our marriage or kids into the ground? That’s a total failure by my definition.”

Rob Campbell



◀ A crew from ARM Services begins several tasks during an onsite project in Alaska.

▼ Kurka and Gall inspect Anua’s Quanics Aerocell NS500 treatment pod before installation.

Inconsistent soil types and steep, mountainous terrain puts more wear and tear on trucks and machines than usual, according to Rob. He says towing and working on steep terrain is harder on transmissions, engines and brakes. Though harsh, Alaska’s weather and terrain isn’t their greatest strain.

“The biggest challenge is balancing a good marriage, a healthy family life and a successful business,” Rob says. “What good is it if our septic business is the most successful business ever, but we run our marriage or kids into the ground? That’s a total failure by my definition.” Holding it all together and growing the business is all about using the combined strengths that Rob and Mariah offer. “We seem to do it a lot better when we are working together, that’s when we notice our business thriving, when we are working alongside each other,” Mariah says.

➤ Isiah Gall and Nathaniel Swanberg load an insulated manhole riser for delivery to an installation site.

Rob agrees that their relationship sets the foundation of a good business. “I would say the success of our business hinges completely on Mariah and I being in unity and putting our marriage and family first,” he says. “Everything else seems to follow suit after that.”

SOURCING MATERIALS

Their geographical location also limits options for supplies and materials. “Material pricing, shipping and availability are all extreme factors in Alaska,” Rob says. “We are subject to shipping constraints via the barges traveling the Alaska Marine Highway and trucking up the Alcan Highway through Canada. “Depending on what side of a municipal boundary line you’re working on, our tankage options include plastic and poly tanks like Infiltrator or Alaskan-made poly injection molded tanks, fiberglass tanks, epoxy coated and cold-tar pitch coated steel tanks,” Rob says.

ARM utilizes plastic and poly tanks roughly 95% of the time for their installs and for drainfield media, most of what they use in the area is made up of 1.5-inch clean-washed drain rock.

The COVID-19 pandemic made for serious shortage challenges and shipping rates skyrocketed. Alaskan contractors are subject to extreme shipping rates for a rush load of materials leading ARM to rely heavily on local suppliers.



EYE ON EXPANSION

Things are going well for ARM and expansion is right around the corner, but Rob and Mariah are careful not to get in over their heads. “I think we are right on the edge of explosive growth, but we are very carefully pumping the brakes to make sure it’s stuff that we and our team are ready for,” Rob says.

With the phone consistently ringing for service in all areas of the company, another issue emerged. “We have had to incorporate knowing when

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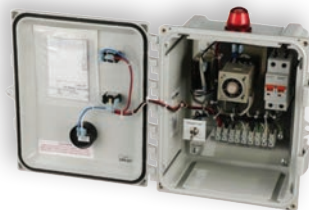
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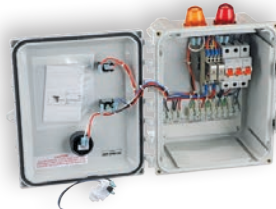
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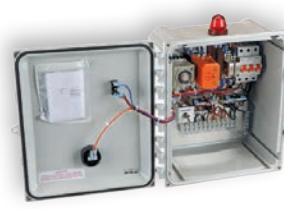
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▲ The ARM Services team includes, from top left, Isaiah Gall, Aaron Elliot; and from bottom left, Nathaniel Kurka, Mariah and Rob Campbell, and Nathaniel "Swanny" Swanberg.

to say no," Rob says. "That's probably been the most important thing for us in the past two years."

Honesty with customers is important, even when you have to turn down work.

"There are times in the heat of the season when we're booked out six to eight weeks and we have to tell people, 'We would really like to do your job, but if we commit, we are not going to be able to follow through,'" says Rob. Mariah's experience in the office and talent for talking to people helps them sort out calls and focus on customers that have similar values.

"If we can't build a relationship with our clients, then it's not the type of job we want," he says. "Mariah has really grown into a position where she's the quarterback, and when these calls are coming in, she has the level of intuition to know what clients are going to appreciate us and what type of clients we want."

TOOLS THAT WORK

Equipment needs differ in Alaska. Freezing conditions make getting to and from the job a challenge as well as a safety issue. "We invest a lot of money into the best tire chains available," Rob says. After trying numerous brands, Rob and Mariah settled on Pewag tire chains. "When my guys are hauling around a mini-excavator with an F-550, you can't compromise on safety."

Along with quality tire chains, ARM trusts a fleet of heavy machinery to get jobs done. They have a 2020 Caterpillar 308 mini-excavator, a 2016 Caterpillar 305.5 mini-excavator and a 2004 CASE 580 Series 2 extended hoe backhoe they affectionately refer to as the "Swiss Army knife." They have a longstanding relationship with NC Machinery, a Cat dealer in Anchorage that supplied the excavators.

Equipment gets to job sites on a Big Bubba gooseneck trailer with Dexter axles, pulled by a Ford F-550 as well as a Ford E-450 diesel van with a Quigley 4x4 conversion that pulls a Diamond C trailer.

For their pumping services, the team relies on a 2004 International HT530 with a 4,000-gallon aluminum tank and Wittig vac pump, a 2007

"I enjoy building a relationship with people in our community. It's not just about making money, it's about that strong community that no matter what happens, ARM is going to be there to help."

Mariah Campbell

Freightliner Columbia with a 3,600-gallon steel tank and Jurop XR 260 pump, and a 1998 Mack with a 3,600-gallon steel tank.

IN THE COMMUNITY

Life in Alaska's septic industry has brought ups and downs, but Rob and Mariah are proud to be a part of it. For both, ARM's success is about much more than making a living.

"I love interacting with clients," Mariah says. "I enjoy building a relationship with people in our community. It's not just about making money, it's about that strong community that no matter what happens, ARM is going to be there to help. And of course, I also like running the excavator every now and then."

Providing for the community is also a big part of Rob's passion and beyond that, he takes pride in providing opportunities through employment. "My favorite part is empowering young people and seeing them rise to their full capability," he says.

The Campbells hope that they can be an example for doing business the right way and inspire others to start businesses that endure for generations.

"Mariah and I have a deep desire to impact other families in business and be an encouragement to them," Rob says. "A small percentage can successfully hand that business off to the next generation. It takes a strong family network to do that." □

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Joe Glasser (1925–2022)

We'd like to take a moment to pause and reflect on the amazing legacy Joe Glasser has left behind.

A decorated WWII and Korean War hero, Lt Colonel Joseph Glasser would later go on to teach at UConn and launch Eljen Corporation out of his basement.

We are where we are today, as a nation and a company, due to the service, dedication and hard work Joe exemplified. We will miss his presence, but will always cherish his memory.



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Educate Customers and Protect Our Image

From Ohio: We must crack down on pumpers who cut corners and give a bad reputation to the wastewater industry

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 Ohio Onsite Wastewater Association.

Walter Clay Kucharski president

Business: Walt Kucharski Septic Service

Our office is in Richfield, Ohio, and we serve eight counties.

Age: 47

Services we offer: Residential and commercial septic tank pumping, bulk hauling, restaurant grease trap pumping, service provider inspections, portable restrooms.

Years in the industry: My father, Walt T. Kucharski, started the company in 1960. I took over in 2011 and incorporated the business.

Association involvement:

We've been a member of the Ohio Onsite Wastewater Association for three years.

Benefits of belonging to the association:

Contact with people in the industry statewide and the education and training that are offered are substantial benefits. There's an annual conference in Columbus. Networking is huge. If you're not going to the meetings and classes, you're missing out.

Biggest issue facing your association right now:

Getting information to all the haulers is difficult because many don't use technology. And if the Association would offer things like health care plans, workers' compensation, and commercial insurance policies tailored to our industry I think more people would join.

Our crew includes:

Kevin Slaughenhoupt is a driver/technician. My wife Laurel does office administration.



▲ Laurel and Walt Kucharski, 2009 Kenworth with a 5,000-gallon aluminum tank and a National Vacuum Equipment pump.

Typical day on the job:

My day starts around 4 or 5 in the morning. Grease traps are cleaned first, then we move on to commercial and residential septic cleaning. Every day is different. Today we pumped out a research yacht which came into port. My phone is always ringing from vendors calling or daily emergencies. We work in tandem with many service providers and other haulers. It might be passing along emergency calls to each other or working together on especially large projects. We really try to keep the relations positive in our area. There is plenty of work to go around.

The job I'll never forget:

A milk truck broke down and sat for several weeks before the owner got approval to move it. I pumped 4,000 gallons of curdled, spoiled milk. I used to love cheesecake but have never eaten it since. Another unforgettable job was from a prominent chocolate factory in Cleveland. The pumps broke and the place flooded with chocolate. I pumped for several days — just pure chocolate. Of course this happened at Easter.

My favorite piece of equipment:

A few years ago I purchased a 2009 Kenworth with a 5,000-gallon tank. Having that capacity really opened up our commercial side — fewer loads,

➤ Technician Kevin Slaughenhaupt, 2013 Peterbilt with a 5,000-gallon aluminum tank and Fruitland Mfg. pump.

higher volume. We just pulled out 35,000 gallons from a barge on the river and since we now have two 5,000-gallon trucks we were able to do it in three hours. The truck has been a pain in repairs, but it makes the money back every time it goes out.

Most challenging site I've worked on:

We pumped a grease trap for a downtown casino. The trap was in a parking garage with a 7-foot clearance over 750 feet away. It was very hard to access. It took two of us and we had to bring a pickup truck with extra hose. We're usually the hauler the other haulers give jobs to. We do long-distancing pumping so we have extra pumps and always carry over 200 feet of hose on all our trucks.

Oops, I wish I could take this one back:

We work with a nearby housing development with 141 homes. The residents don't understand their very unique system (Orenco Systems' ProSTEP) that only they have in all of Northeast Ohio. They were under the impression they didn't have to clean their tanks and there was nothing they had to do. Trying to get them to listen to recommendations and maintain their tanks has been challenging. So we get a lot of weekend emergency calls. We feel obligated to do it because they're in our neighborhood and it's the neighborly thing to do.

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

A contractor called and asked if we could help him with a dead body. A man who had died while in a hot tub had been there for many days before being discovered. The contractor wanted us to pump all the "goo" in the hot tub. Another time a chicken slaughterhouse wanted us to remove all the waste. Fortunately, both of these jobs are considered hazmat so we could not do them.

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

Cracking down on the pumpers who cut corners, don't get properly licensed, illegally dump in fields, undercut prices. It makes it really hard for the ones who are doing it correctly.

Best piece of small business advice I've heard:

Knowledge is power. My dad always said, "It doesn't matter what profession you are in, become a master in it, do the best you possibly can."

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

I was the only son so I really never thought about doing anything else. I went to college, played football, but always knew I would return to the septic business.

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

Education for homeowners is so important — making them aware of the importance of maintaining their systems and educating them on the costs



associated in coming to their home (payroll, fuel, disposal, insurance, etc.) This is not a well-respected industry and I would like to see that change. We are essential employees — the pandemic proved that. ☐

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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Montana Water Quality Standard Runs Into Problems with EPA Officials

By David Steinkraus

The U.S. Environmental Protection Agency declared Montana's new water quality standard invalid under the Clean Water Act. The agency's Region 8 office sent its letter of rejection to the state's Department of Environmental Quality in the spring.

A law passed in 2021 eliminated the state's numeric standards for nutrient pollution and instead required DEQ to regulate discharges of phosphorus or nitrogen based on a narrative standard. Prohibited discharges would create conditions toxic to human, animal, plant and aquatic life; create conditions that produce undesirable aquatic life; or cause measurable changes in aquatic life.

News reports noted that Montanans have always prided themselves on having clean, clear streams with thriving trout populations. Montana DEQ spent several years developing numeric standards that were adopted in 2015.

After the narrative standard law passed last year, the state convened a working group to develop those standards. But the group spent a year failing to agree on anything, according to *Courthouse News Service*.

In her letter to DEQ, Darcy O'Connor, director of the water division for Region 8, said the state failed to demonstrate that its narrative standard is enough to protect water quality, and she said the state's permitting history during the last two years shows that the narrative standard doesn't work.

Florida

The Cocoa City Council is looking into several options for dealing with septic tank pollution from 92 homes, and one option is requiring people to connect to municipal sewer service.

The other options are to convert homes from conventional to advanced onsite systems, to allow homeowners the option of connecting to municipal sewer, and to delay any decision, reported *Florida Today*.

Municipal sewer connections or advanced onsite systems would be funded by \$5.1 million from a half-cent sales tax dedicated to reducing pollution in the Indian River Lagoon. Cocoa is southeast of Orlando and near the top of the lagoon, which stretches along Florida's east coast.

The city council voted to look into the legalities of forcing people to convert to municipal sewer. Members tabled a decision on the options.

California

Environmental health staff from Humboldt County are holding public comment workshops to gather information about onsite system performance. Information will become part of the report required every five years under the county's local area management plan. More information is available from environmental health staff at 707-445-6215 or by email at envhealth@co.humboldt.ca.us.

New York

Onsite systems within 500 feet of Lake George and 100 feet of some streams would have to be inspected every five years under a proposal from the Lake George Park Commission.

About 2,700 properties in the lake's watershed would be affected, and seasonal workers would perform the inspections, reported the *Post-Star* of Glens Falls.

Commissioners submitted the proposal to the state for formal rule-making. If the state agrees, the commission hopes to implement regulations by 2023.

Failing systems would be those lacking pretreatment, having surface discharge of effluent or surface discharge of graywater. Other problem signs would be a system that needs pumping more than four times per year and systems that use cesspools or metal tanks.

NATION

The U.S. Environmental Protection Agency announced \$1.9 billion in grant funding to the State Revolving Funds for water infrastructure projects. Combined with \$7.7 billion from the federal infrastructure law, the state funds will have \$9.6 billion for water projects.

Under the revolving fund program, EPA provides money to states and Puerto Rico for loan programs. Money is released as low-interest loans to people for clean water infrastructure projects. Repaid loans become capital for more projects.

* * *

The Indian Health Service announced a total of \$3.5 billion for tribal water and sanitation projects. The money is broken down into \$700 million increments for fiscal years 2022 through 2026 and comes from the federal infrastructure law passed by Congress and signed by President Joe Biden.

Money will provide water wells and onsite systems for 71,000 Native American and Alaska Native homes. Each \$1 spent on sanitation can save \$1.23 in avoided health care costs for problems such as gastrointestinal disease, respiratory issues and diseases of the skin and soft tissues, said a press release from the health service.

Leaders of the Navajo Nation in the Southwest say failing wastewater systems are an increasing concern on their reservation, reported Arizona Public Radio. More than 15,000 homes on tribal land need sanitation improvements, said the tribe's annual report. ❑

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

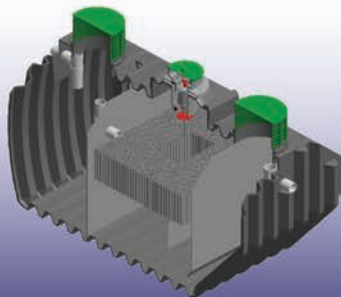


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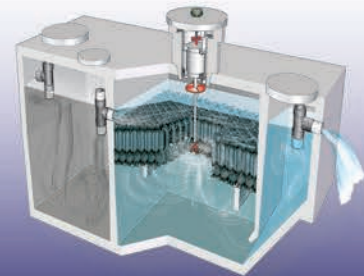
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SYSTEM PROFILE



Double Dwelling

Aerobics and a seepage pit provide the answer to serve a main house and mother-in-law cottage on a compact California lot

By David Steinkraus

▲ After flowing through the existing septic tank (not pictured), wastewater at the Redlands lot moves through a Jet aerobic unit and then to a pair of seepage pits. (Photos courtesy American Septic Services Inc.)

The city of Redlands is 63 miles east of Los Angeles, still part of urban Southern California but not entirely served by sewer.

“Because of the topography, there are a lot of little canyons. They couldn’t have gravity-flow sewer for the whole city, so a large percentage of the homes are on septic systems,” says Zekai Nazikoglu, president of American Septic Services Inc. in Redlands. “A lot of people don’t know, when they buy expensive houses, that they’re on septic.”

His onsite project in Redlands involved the addition of a 900-square-foot house at the back of a 0.37-acre lot. Typically these are called mother-in-law houses, a small dwelling for an aging relative, but in this case it was for a mother whose daughter lived in the main house of 1,586 square feet. The property had been served by a conventional septic system.

When the project began, a state rule came into play, Nazikoglu says. In California, an advanced treatment unit is required for any home addition or

a second dwelling if the lot is less than a half-acre. The old system was under a grandfather clause, but now it had to go, and both the main house and the small house had to be connected to a new ATU.

The system

Effluent leaves both buildings in 4-inch-diameter ABS pipe and joins a main line of the same size. Both PVC and ABS are allowed by California, Nazikoglu says, and while both are good, he prefers ABS because it is black. Anyone working on the system in future will immediately know the pipe carries wastewater.

The 4-inch collection pipe runs 452 feet from the back of the lot, where the mother’s house is, to the old 1,000-gallon concrete septic tank in the front yard. The two-compartment concrete tank is now used for settling and pretreatment. Wastewater flows next to a 750-gallon plastic tank holding



System Profile

Location: Redlands, California
Facility served: Single-family home
Designer/Installer: Goddards/Nazco Services
Type of system: Jet Inc. aerobics with seepage pit
Site conditions: Silty clay with small gravel
Hydraulic capacity: 1,000 gpd

◀◀ Omar Ramirez, left, and Jose Pacheco, right, use an Earth Drill to drill a seepage pit hole for the new onsite system serving an existing main house and new small house at a property in Redlands, California.

✔ For the small house project in Redlands, technicians from American Septic Systems drilled a seepage pit 5 feet in diameter and 24 feet deep and installed a perforated concrete liner for the structure.

✔✔ Jose Pacheco from American Septic Services checks the distribution box during the installation of an advanced treatment system in Redlands, California.

the aerobic treatment package from Jet Inc., which includes a UV system.

Effluent then flows about 8 feet to a distribution box where it is split between two pipes that carry it to a pair of seepage pits. Each pit is 5 feet in diameter and 24 feet deep, and has a perforated concrete liner. Pro-Cast Products, in Highland, California, made the liners and lids.

A Jet panel controls the system.

For the job, Nazikoglu's crew used a 2009 Ditch Witch trencher and a 2012 CASE 590 Turbo backhoe.

"The back of the property wasn't big enough to use large equipment," Nazikoglu says. "I used the trencher to set the width and depth, and then we used manpower, a jackhammer, and hand digging for about 100 feet."

The crew also used an Earth Drill rig to bore a seepage pit hole. When the drill bit is full of dirt, a worker on the ground pulls a trip line to empty the soil.

"A lot of people were telling me, 'Doc, you are a scientist, why don't you have an automatic trip?'" he says. (Nazikoglu holds a doctorate in geology and geophysics and taught at Chapman University in Irvine, California.) "I don't want an automatic trip because I want a second person there. Safety wise, if something happens, the other person can call me."

Challenges

Permitting wasn't easy, and the COVID-19 pandemic made it worse. Permits are issued under a local area management program required by the state water control boards. But when they first applied for this permit, Nazikoglu says, the city of Redlands didn't have its management program in place yet. So the permit application first had to go to state government.



Once that approval was given, the application was submitted to the city.

"I waited about four months to get the OK for this system," he says. "When COVID hit, you couldn't go talk person to person. You are emailing. When you are emailing, you don't know how many emails that person got." Permit problems aside, he says, construction took a week.

Pipes from the main house could easily provide gravity flow. It was different for the mother-in-law house, which was at the back of the lot. "I had to advise the contractor, don't bury the pipes too deep," Nazikoglu says.

He specified no deeper than 18 inches. The back half of the lot was flat. From the middle to the front, where the system was, the lot sloped 1% to 2%. This was enough to provide gravity flow.

In the seepage pit holes, soil was organic matter and some silty sand in the top 3 feet, then sandy with quarter-inch-diameter gravel below. Water table height was not an issue.

SYSTEM PROFILE



Seepage pit

Concrete seepage liners were in sections 5 feet in diameter and 3 feet high. Holes consume about 48% of the liner surface, and the sections have tongue-and-groove edges. The hole bottoms were finished by flattening the dirt, and the bottom must be perfectly flat in order to ensure the liners are vertical, he says. In some cases it's necessary to bed liners with gravel.

Seepage pits are the designer's choice, Nazikoglu says, and they have advantages. First, they don't require the horizontal space of a drainfield, and regulations require a 100% buffer for future expansion, which means losing some or all of a backyard, he says. Second, they can store water and be pumped if a system fails. Once a drainfield is saturated, it's done, he adds.

Influent contribution from the second dwelling on the property was calculated at 75 gpd. That would suffice for a one-bedroom dwelling with a resident up to 40 years old, he says. For older people, water usage tends to drop to about 60 gpd per person. But he allowed for a bit more capacity than is strictly required.

Watch the sprinklers

There was a three-week delay in getting components from Jet due to supply-chain problems that accompanied the pandemic, he says.

Overhead wires along the street didn't pose a problem for the crew running the earth drill rig, Nazikoglu says. "Our biggest problem was there were a lot of water sprinkler lines. We had to cut and fix those. That takes time."



▲ Zekai "Doc" Nazikoglu, center, is flanked by assistant Melissa Rico, left, and manager Celeste Cuevas.

◀ Omar Ramirez, a technician for American Septic Services, works on a trench for the collection pipe serving the small new house (background) at the Redlands project. Technicians had to deal with numerous sprinkler lines running across the property.

"Because of the topography, there are a lot of little canyons. They couldn't have gravity-flow sewer for the whole city, so a large percentage of the homes are on septic systems. A lot of people don't know, when they buy expensive houses, that they're on septic."

Zekai Nazikoglu

One reason why the job went as quickly as it did was Nazikoglu's change in the design. Originally the design called for a filter system and leach lines, all in the backyard. That would have required a lot of hand digging, he says. In the revised design he reused a seepage pit from the old system, and there was no need to disturb fruit trees on the property, he says.

It all worked because of the relationship with the customer.

"I got to know the owners before, so they trusted me. They said, 'We believe you whatever you want to do,'" he says. Also, Nazikoglu's daughter and the daughter of the owners attended the same school. ■

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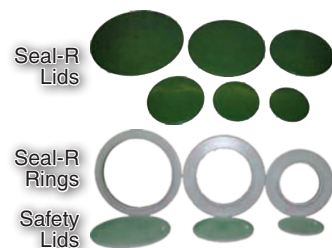
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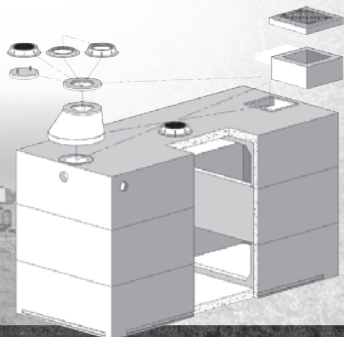
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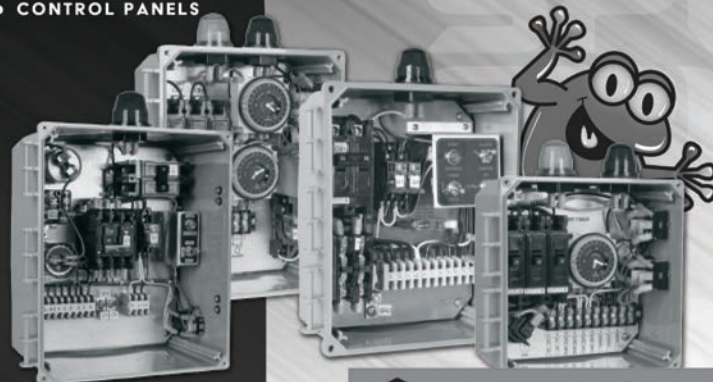
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Take Your Time During Site Evaluation Process

If you start with bad soils data, the risk is high for design flaws that will cripple your new system

By Jim Anderson and Dave Gustafson

We have been involved in troubleshooting many onsite waste treatment systems. We've observed that most problems with systems start with bad decisions about the site and soils.

If adequate time and effort has not been put into site evaluation, inadequate or wrong data are collected, leading to bad design decisions which then translate directly to installation practices in the field. This is true whether the site evaluator and designer are the same person or two separate people. The design and installation will only be as good as the information collected ahead of time and then used in the design.

A complete site evaluation involves three distinct phases: gathering preliminary information, evaluating the site in the field and reporting the results.

Information gathered during the preliminary phase can inform and direct field activities. The kinds of information gathered include legal descriptions of the property, setbacks, easements, well locations, soil and landscape characteristics and legal design requirements. Field evaluations locate these features and conditions on the site, collect site specific soil information and locate the system relative to other property improvements. Finally, the data and information collected is recorded and reported to the designer. This information is stored as part of system design and installation for future reference or review.

SOIL SURVEY IS KEY

The importance of gathering information on soils and landscapes was brought home again when we were contacted by a state regulator to review and comment on a guidance document being prepared to send out to county regulators, site evaluators, designers and installers. The document covered identification, location and design solutions for sodium-affected soils.

It was interesting to hear about conditions that led to development of the guidance. In a certain county, for years there were reports from homeowners and installers that onsite treatment systems were failing shortly after installation. When soil survey information was accessed and reviewed in the state office, the area where failures occurred was mapped as having sodium-affected soils. Sodium-affected soils are generally characterized by very slow permeability and poor drainage. Both conditions, of course, are detrimental to long-term operation of onsite waste treatment systems.

Field visits confirmed this was the problem. The question was why it took so long to identify the problem when the answer was easily determined

Access to the information has changed dramatically and it can be accessed from anywhere through the internet through the web soil survey. In addition to easier access, any changes or updates to the survey are readily incorporated.

by looking at the soil survey information. This is a very good question, with probably not a single answer. In our education programs and presentations, use of soil survey information as a part of the site evaluation process has always been important.

BETTER INFORMATION ACCESS

Soil surveys include a wealth of information about soils in an area, helping the site evaluator and designer determine their field activities and inform their design decisions. Information is provided on soil properties and conditions such as depth to limiting soil layers (saturation, bedrock, dense soil), texture, structure, saturated conductivity and permeability. In addition, there is information on site and landscape features (landscape position, slope, landform) and potential for flooding or ponding.

Long ago, the way to access this information was to obtain a printed copy of the county survey, which included soil maps on a photographic background and soil data in tabular form with written soil series and map unit descriptions. This was done by visiting the local soil and water district office, public library or county land and zoning office.

Because of this, access could be somewhat limited. In addition, depending on the year the survey was conducted in that area, the tabular data on soil properties, characteristics and interpretations could be outdated. In our opinion, all of this led to less use of this information to help inform the site evaluation. We happened to reside in a state where this information was more widely available, but this was not the case everywhere.

Fortunately, access to the information has changed dramatically and it can be accessed from anywhere through the internet through the web soil

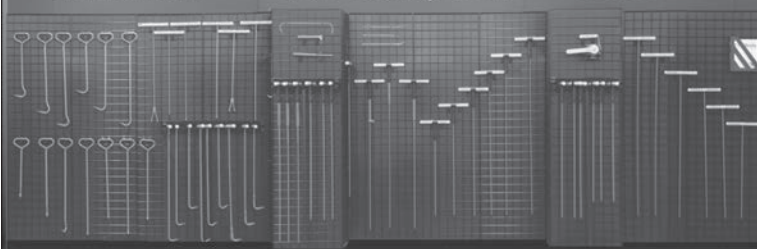


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survey. In addition to easier access, any changes or updates to the survey are readily incorporated, so the information is up to date.

CHECK THE DATABASE

The NRCS Soil Web Survey can be found at the following address:

websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Within the NRCS Soil Web Survey:

- Click on the green "Start WSS" button.
- Under the "Quick Navigation" heading on the left side of the page, click on "address" and insert the address for your site.
- Just below the "Area of Interest Interactive Map" tab, click on "AOI" (area of interest). This will allow you to draw a box around the general area of your site.
- Click on the "Soil Data Explorer" tab near the top of the page. Then click on the "Soil Reports" tab just below to the right.
- Select properties you are interested in. In the case of sodic soils, it is chemical properties.
- Click on "View Soil Report." This will provide a detailed chemical report for each soil name within your AOI.

Additionally, once you have defined your AOI, you could also click on the "Suitabilities and Limitations For Use" tab. This will provide information on the particular use of interest, in our case Septic Tank Absorption Fields. Be aware if you look at this information, it may not include all the design options available for this soil. We will address design options in a future column. Bottom line is if you have questions about soil conditions in your area, consult the soil survey. You will be happy you did. ■



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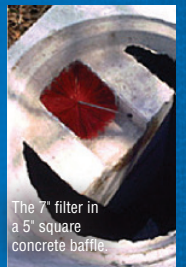
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EPA MOU Partners Promote Infrastructure Advances During SepticSmart Week

By Mary Clark

Decentralized wastewater systems serve approximately 20% of U.S. homes. Although these onsite septic systems can provide an effective means to treat wastewater, for many homeowners the systems are substandard, malfunctioning or non-compliant.

In many cases, inadequate and malfunctioning wastewater infrastructure disproportionately affect people of color and low-income communities that often lack the financial resources to tackle these challenges and contend with potential health risks to families. Across the country, malfunctioning decentralized wastewater infrastructure is making the news. Recent articles from Alabama, Alaska, North Carolina, New Mexico and Massachusetts point to the need for more funding to support building, repairing or replacing aging or non-existent decentralized systems.

But it's not all bad news. The arrival of the Bipartisan Infrastructure Law provides an unprecedented opportunity to address wastewater infrastructure needs, particularly for underserved communities with decentralized infrastructure. The BIL provides \$11.7 billion through the Clean Water State Revolving Fund and sets aside 49% of that funding for grants or forgivable loans. This provides a pathway for communities to access traditional CWSRF loans to upgrade their wastewater infrastructure.

The decentralized wastewater industry is excited to have this moment. In our efforts to provide the country with safe and reliable wastewater treatment, we are also aware of the increasing need to provide support to those who need it most to repair, replace or access financing for a new system. In fact, 20 organizations participate in a Memorandum of Understanding with the U.S. Environmental Protection Agency to collaborate on decentralized wastewater issues.

The EPA's Decentralized Wastewater MOU Partnership prioritizes education and outreach to homeowners with decentralized systems. EPA's SepticSmart program is an example of these efforts to share information with homeowners on the proper use, maintenance and upkeep of systems. This month the Decentralized Wastewater MOU Partnership and EPA celebrate the 10th Anniversary of SepticSmart Week Sept. 19-23. In recognition of this anniversary, EPA is sponsoring a photo challenge to encourage interest in demonstrating the seven SepticSmart Quick Tips. We encourage you, your company or customers to take part by submitting photos or videos.



◀ These 20 organizations make up the EPA Decentralized Wastewater MOU Partners.

The SepticSmart program also has an online outreach toolkit that provides useful information and videos on what to flush/not flush, the importance of inspecting your system and pumping septic tanks as needed. These tools are intended to equip homeowners with the necessary basic information to keep their systems running effectively and efficiently.

The Decentralized Wastewater MOU Partnership has worked together since 2005 on priority issues, including mechanisms to fund or finance decentralized wastewater systems. EPA recently released a guide on how to use the CWSRF for financing decentralized projects. The MOU Partners are also focused on initiatives that problem-solve and find creative solutions to meet the nation's decentralized wastewater financing needs, for example Decentralized Wastewater Innovation and Community Plumbing Challenge.

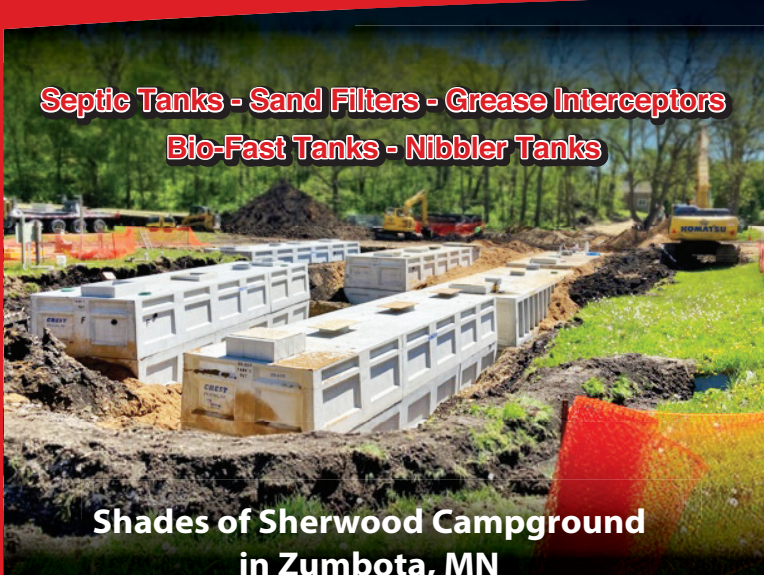
Much remains to be done to meet the needs of decentralized homeowners, particularly for those in underserved communities. Members of the MOU Partnership are working hard to ensure there are funding opportunities across the nation to meet these needs, brainstorming solutions to address malfunctioning systems, and working collaboratively to ensure all Americans have access to safe, reliable wastewater infrastructure, now and for future generations.

For more information on the photo challenge, to access the online outreach toolkit or to learn about the financing guide, visit www.epa.gov. ◻

Mary Clark, technical advisor, MDB Inc. in collaboration with EPA Decentralized Wastewater MOU Partners.

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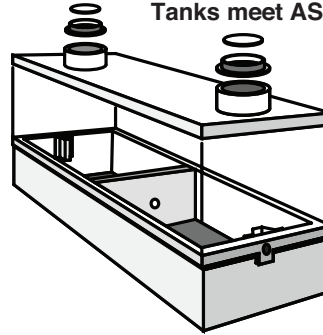
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INDUSTRY NEWS


Felling Trailers names national accounts coordinator

Felling Trailers appointed Mike Wolff to inside sales – national accounts coordinator. Wolff will manage the day-to-day account activity for the company's top national rental partners and inside sales calls. He will be responsible for sales development, activity and account support. He previously held the role of sales coordinator at the company.



Mike Wolff

Infiltrator publishes updated manuals for new buoyancy control strap kits

Infiltrator Water Technologies published updated buoyancy control guidance manuals and videos on its website, www.infiltratorwater.com. These resources can be accessed and shared among septic system installers, designers, regulators and distributors. New buoyancy control strap kits from Infiltrator are designed to use with the Infiltrator line of tanks to ensure reliable, fast installation of tanks where buoyancy control is necessary. The kit contains a set of two, four-strap kits including: two, 5-foot-long straps with sewn, looped ends and a 14-foot-long strap with a hooked end to be inserted into a ratchet strap with hooked end. 

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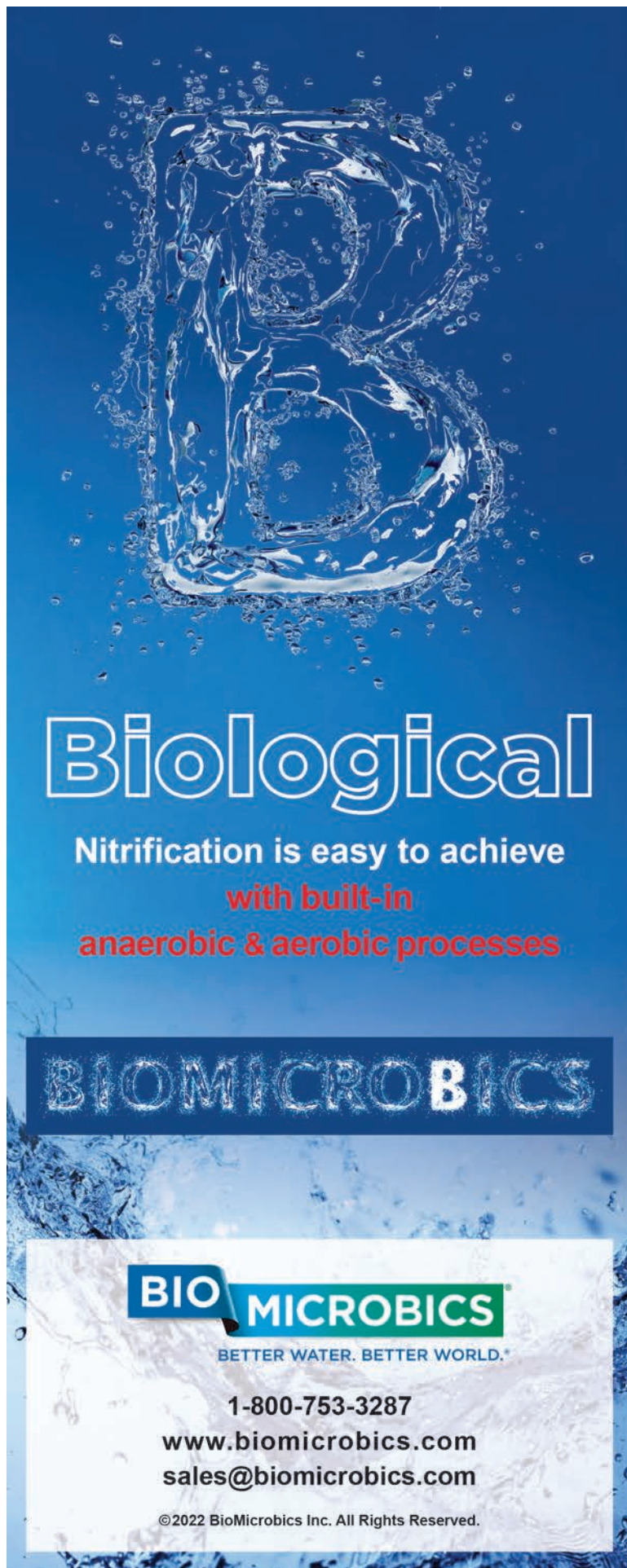
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Pumps

By Craig Mandli

EFFLUENT PUMPS

Ashland Pump effluent pumps

Heavy-duty effluent pumps from **Ashland Pump** are available in multiple horsepower sizes for various performance requirements and have efficient, permanent split-capacitor motors. The oil-filled pumps have an upper and lower ball bearing design and handle solids up to 3/4 inch. They are made of cast iron, with cast iron impellers and equipped with a piggyback switch (20-foot standard cord) or in manual configurations. They are offered in 3/10, 4/10, 1/2, 3/4, 1 and 1 1/2 hp models. 855-281-6830; www.ashlandpump.com



Orenco Systems Biotube ProPak

Biotube ProPak pump packages from **Orenco Systems** are complete and ready to install. They are used for filtering and pumping effluent from single- or dual-compartment septic tanks to gravity or pressurized discharge points. Pump vault technology eliminates the need for a separate dosing tank. Packages include a Biotube filter cartridge, which filters up to two-thirds of solids, so only liquid from the tank's clear zone is pumped. Filters are easy to remove and clean without pulling the pump vault. All components are designed to be quickly installed and easily maintained. The PF Series high-head effluent pump is field serviceable and field repairable, and pump controls are designed for specific packages. Multiple models are available. ProPak Select software is designed to provide fast, error-free hydraulic calculations and generate system curves. 800-348-9843; www.orenco.com



Webtrol Pumps WTE Series

WTE Series turbine effluent pumps from **Webtrol Pumps** include a stainless steel intake screen and cable guard. The enclosed urethane bearing is mounted in a polycarbonate top diffuser. They include a floating stack design, which prevents clogging, and impellers are constructed from glass reinforced Noryl. They offer up to 80 gpm and motor ranges from 0.5 to 5 hp. High heads of up to 840 feet are produced by a multistage design. They are designed as a solution for treatment and STEP systems, dripfield dosing, sewer force mains, among other applications. 800-769-7867; www.webtrol.com



GRINDER PUMP

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. It is designed with axial cutting technology to reduce solids like flushable wipes, diapers and other nonbiodegradable items. Maintenance is convenient with only a single tool needed for disassembly. The plug-and-play cord also provides easy servicing without requiring removal of epoxy in the conduit. Unlike nonclog pumps with large discharge sizes, its 1.25-inch discharge is suitable for preconfigured packaged systems and turnkey solutions. It is available in the Barnes EcoTRAN Pressure Sewer System, allowing superior waste grinding in tough terrain. It provides a practical and environmentally safe alternative to traditional gravity systems, according to the maker. Numerous configuration options are available. 937-778-8947; www.cranepumps.com



VERTICAL/LIFT STATION PUMP

Saniflo Sanicubic 2VX



The **Sanicubic 2VX** lift station from **Saniflo** provides above-floor drainage for multiple plumbing fixtures for a commercial structure, eliminating the need for pit installations. It is a suitable solution for projects where conventional, below-floor drainage is impossible or

too costly to install. Equipped with two 1.5 hp duplex motors ("duplex"), the lift station is capable of discharging effluent through either 2- or 4-inch rigid pipe and offers a shut-off head of 43 feet. It employs an internal air pressure switch for automatic on-off cycling. The unit also comes with a wired control panel, as well as an external audible and visual LED indicator alarm in the event that a pump experiences overload or ceases to operate. Featuring easily removable circular panels on top, the IP68 enclosure permits access to every major component inside. 800-363-5874; www.saniflo.com

SOLIDS/SLUDGE PUMP

Gorman-Rupp Super T Series

Super T Series self-priming centrifugal trash pumps from Gorman-Rupp are available with Eradicator Plus solids-reduction technology for 3-, 4- and 6-inch sizes. The product was designed for extreme-duty applications in municipal, industrial and agricultural markets. For liquids containing trash bags, wipes, mop heads, hair, industrial byproducts and agricultural wastes, it cuts and tears organic solids entering the pump. Pumps include an easily removable light-weight inspection cover, a back cover plate incorporating an obstruction-free flow path, a heavy-duty hard iron continuous vane impeller with thick back shroud to prevent debris buildup, an extra-thick hard iron wear plate with notches, grooves and oversized lacerating teeth to cut and shred organic solids, and an upgraded stainless steel, load-bearing shaft. Complete units are available in cast iron construction. Upgrade kits are available for pumps currently in use. 419-755-1011; www.grpumps.com



SUMP PUMP

Vertiflo Pump Series 900

The Series 900 industrial vertical immersion vortex sump pump from Vertiflo Pump provides an unrestricted flow, since the impeller is not normally in contact with solids being pumped. Applications include chemical slurries, fragile food-processing solids, paper and pulpy solids, petroleum and oils, sewage, wastewater treatment and textiles. It handles solids up to 4 inches in diameter. It is designed for long life in severe service with heads to 170 feet, temperatures to 350 degrees F, and pit depths up to 26 feet with flows to 1,600 gpm. Construction options include cast iron, 316 stainless steel fitted, all 316 stainless steel, Alloy 20 and CD4MC. 513-530-0888; www.vertiflopump.com



SUBMERSIBLE PUMPS

FPS, a brand of Franklin Electric 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 — making them suitable for a variety of applications such as lift stations, sewage systems, stormwater, flood and pollution control, industrial waste and dewatering, wastewater treatment plants and



general fluid transfer. They are available in single- and three-phase power options to accommodate flows up to 625 gpm. Each unit is designed for durability with features like a field-adjustable wear plate, factory-standard dual silicon carbide mechanical seals, and chemical-resistant components. Intrinsically safe nonclog control panels are also available for complete systems integration. 866-271-2859; www.franklinengineered.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



PUMP CONTROLS

Jet Inc. Model 196 Control Panel

The Model 196 Control Panel from Jet Inc. is prewired and designed to control and monitor operation of Jet system aerators, as well as the function of one or two 120/1/60 or 240/1/60 pumps for flow equalization and various pressured distribution system applications such as time-dose, demand-dose and night-spray. The panel allows for optional cycle timer, cycle counter, remote telemetry and auxiliary alarms. All controls, audible and visual alarms are housed in a NEMA 4 control enclosure. 800-321-6960; www.jetincorp.com



Liberty Pumps NightEye

The NightEye app and cloud-based system from Liberty Pumps allows internet connection of a pump via the home's wireless router and provides alarm and other performance information to a mobile device. The system sends information via text, email and push notifications, to up to four different address/phone numbers anywhere in the world. Connected products include the ALM-EYE series indoor pump alarm, 442 battery backup pump systems and the SumpJet water powered backup pump. The system is easy to use and set up through a portable device, according to the maker. Download the free app, register the device and connect to the equipment using BlinkUp technology. The app is compatible with iOS and Android devices. There are no subscription or service fees. 800-543-2550; www.libertypumps.com



SJE Rhombus Installer Friendly Series

Installer Friendly Series single-phase panels from SJE Rhombus offer an easy-to-use color LCD on the inner door for programming and system monitoring. Use the menu navigation to select pump hand/off/auto mode, convert between demand or timed dose operation, adjust pump activation levels and switch between traditional floats or the C-Level sensor for continuous level monitoring — all while in the field. Users can also check the tank level indication and setpoint monitoring at a glance. The simplex panel controls one 120/208/240V single-phase pump, while the duplex controls two 120/208/240V single-phase pumps in water and wastewater applications. The panels are UL/cUL listed. 888-342-5753; www.sjerrhombus.com



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 it 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



PUMP PARTS/COMPONENTS

Delta Treatment Systems ECOFILTER Pump Vault

The ECOFILTER Pump Vault tank filtration system from Delta Treatment Systems prolongs downstream drainfield and treatment system life by reducing biological loading and clogging. The integrated system easily installs in new or existing single- or double-compartment tanks and is suitable for STEP collection systems and effluent treatment. Featuring a dual compartment housing for simplex or duplex applications, the vault draws effluent from the clarified zone of the tank, minimizing suspended solids. The easy-access design maximizes filter surface area and streamlines filter inspection and maintenance by enabling filter cartridge removal without pulling the pump or vault. The system's float stem bracket makes removal and adjustment of the float assembly simple. Constructed of high-density polyethylene with UV inhibitors for longevity, the vault is customizable to meet project needs. 800-221-4436; www.infiltratorwater.com



Hiblow USA HP-60/80 Authentic Rebuild Kits

To prevent buyer confusion, Hiblow USA HP-60/80 Authentic Rebuild Kits now 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 company recommends rebuilding the pump — changing out both the diaphragms and the casing blocks — 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 □



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CASE STUDY

Pumps


By Craig Mandli


Alternative system used on small lakefront property



Problem: A customer was working on a Midwestern lakefront home, unable to install a septic tank due to the lot size and the proximity to the lake. The home was situated on a steep incline to the lake, and there was no way to have a gravity line for conventional sewer service.

Solution: JMI Pump Systems suggested the customer use a Franklin Electric PowerSewer located outside at the bottom of the incline, as this would allow the entire house to drain by gravity. The field-adjustable inlet and pre-wired electrical conduit made installation easy. The system incorporated a grinder pump that reduced solids to a slurry that can be pumped in 1 1/4-inch pipe. The grinder pump sits in a "C" channel that enables the pump to be easily accessed for maintenance, and the accompanying float tree allows ease of access on the control floats. As designed, the PowerSewer would pump up the hill to a holding tank on top, which in turn would be pumped by a pumper. Both the high-water alarms for the PowerSewer and holding tank were connected to an SJE Rhombus Xpert Wi-Fi alarm. This notifies the homeowner via text and email of high water conditions in the PowerSewer and connects directly to the pumper to service the holding tank.

Result: The homeowner appreciated the system's small footprint along with notifications going directly to the pumper for servicing the holding tank. The contractors were pleased with the ease of installation and service provided. 800-234-5490; www.jmipumps.com 



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PRODUCT NEWS

PRODUCT SPOTLIGHT

Customers prompted the feature set of new Pro4 onsite chamber system

By Tim Dobbins

Plastic leaching chambers have become a popular option for many residential and commercial applications seeking the gravel-less route. Prinsco recently launched its version, the Pro4 Onsite Chamber system, largely in part because customers were asking for it.

"For the past 15 years, countless Prinsco customers in the Midwest have asked us to develop a gravel-less leaching chamber alternative," says Jamie Duininck, CEO of Prinsco. "So we engaged in a comprehensive national market study to better understand the total market size and the customer features and benefits that drive buying decisions."

Prinsco's national onsite manager, Blake Johnston, says the project team's decades of industry experience and countless interviews with stakeholders went into the design process, resulting in an injection-molded polymer chamber manufactured to be used in trenches and bed applications.

"A key design feature of the Pro4 is the asymmetrical arch that creates a flatter surface to walk on, increased sidewall height for greater infiltration and increased storage volume that helps accommodate peak flows," Johnston says. "The Pro4 was specifically designed for professional contractors who are looking for ease of installation, durability and application flexibility, while maximizing drainfield infiltration area."



The Pro4 supports gravity, front, side and top inletting elevations and accommodates 1 1/4- to 2-inch diameter pipes installed at grade or suspended for pressure dosing. A provision for a 4-inch inspection port is also molded in at each chamber-to-chamber and chamber-to-endcap connection.

The Pro4/36 is the first in a full line of Pro4 chambers, measuring 48 inches long, 34 inches wide and 12 inches tall, requiring a trench width of 36 inches and allows 51 gallons of storage. They are joined together using the molded interlocking couplers that also accept the Pro4 Endcap. Endcaps measure 13-inches long, 29-inches wide and 12-inches tall. Couplers are fixed to each unit and offer 10-degree articulation in multiple directions for contoured applications.

Chamber louvers measure 8.5 inches tall, and the open bottom provides 9.8 square feet of surface area.

Johnston says feedback from early users has been encouraging. "We received positive product design feedback from installers, designers and distributors on the Pro4 features, such as the asymmetrical arch, refined louver design and versatile endcap," he says. "That really validated that the Pro4 is a welcomed new choice for onsite professionals." 320-222-6800; www.prinsco.com □

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The Role of Precast Concrete in Decentralized Onsite Wastewater Management

Claude Goguen, P.E., LEED AP, NPCA

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Hugh C. Scott IV, P.E.

Graduate of the University of New Hampshire's Civil Engineering program with over 15 years of field-based technical and management experience in the engineering, precast concrete and construction industries.

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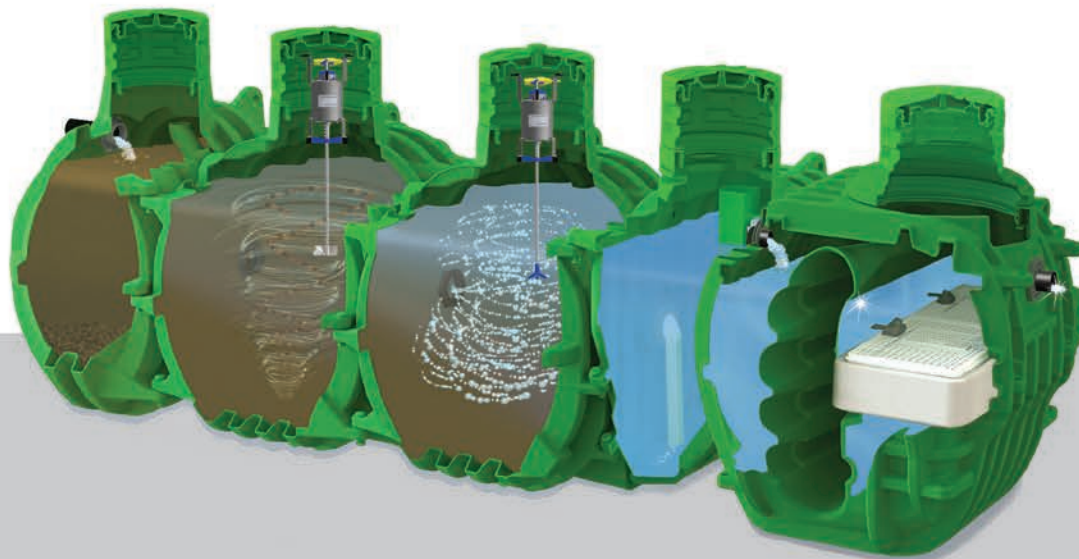
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