September
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Eyes on the Future

Alex Mauck strives to keep his business and the industry moving forward

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Alex Mauck
Owner of
Goodman Sanitation

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September 2011

ONSITE installer

Published monthly by
COLEpublishing
1720 Maple Lake Dam Rd. • PO Box 220 • Three Lakes, WI 54562

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Circulation averages 21,421 copies per month. This figure includes both U.S. and International distribution.

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Paddle Strokes

NOWRA moves in affirmative directions with new member benefits and a renewed dedication to building influence in the halls of government

By Ted J. Rulseh, Editor

When canoeing, it's a great sensation when a partner climbs aboard and immediately you feel the strokes of his or her paddle.

One gets something akin to that feeling from watching NOWRA in recent months. The organization has always had an amazingly dedicated group of volunteer directors. Now they have more staff resources behind them, with the appointment of Eric Casey as executive director and an affiliation with the Water Environment Federation that includes the sharing of office space.

An association like NOWRA, properly funded and supported, can do a great deal of good for the industry and everyone in it. NOWRA's volunteer directors and professional staff clearly have industry members' interests at heart.

Whatever may happen in the months and years ahead, there's no question the organization is more serious than ever about serving members and raising the stature of onsite wastewater treatment.

Cases in point

I would cite as evidence three specific items. First, the Onsite Wastewater Systems Summit, held last June with the National Environmental Health Association and the State Onsite Regulators Alliance.

It was the first joint meeting of the three groups, and it is a promising sign of unity, bringing together the onsite industry's national association, the purveyor of a national onsite system installation credential (NEHA), and the regulatory community. It makes all the sense in the world for those groups to be allied.

Second, NOWRA has begun to make more inroads on member benefits. The association recently partnered with Wells Fargo to provide members with discounts on interest rates and document fees for equipment purchases.

The bank's Specialty Vehicles Division offers NOWRA members a 0.25 percentage-point discount from the prevailing interest rate for purchases of vehicles or related equipment in excess of $50,000.

In other words, if the going rate is 6 percent, NOWRA members can get a loan at 5.75 percent. The bank also reduces its document fees charge from $500 to $350. That's not going to transform anyone's business, but it is without question a tangible benefit and a nice step toward giving more for members' association dues.

And third, maybe most important, there's the initiative toward engaging a lobbyist to represent the industry's interests in Washington.

Casey and the board observe, quite appropriately, that while onsite systems are recognized as part of the nation's permanent wastewater treatment solution, the onsite industry gets only a tiny sliver of federal wastewater project funding under the EPA's Clean Water State Revolving Fund.

Exploring potential

In this initiative, NOWRA is enlisting support from other national organizations, state affiliates, the manufacturing community, and interested individuals.

These affirmative steps are refreshing. In observing the onsite industry for several years as editor of this magazine, it has been frustrating to see so much creativity wasted and so much energy burned fighting gridlock of various kinds.

For example, there are great treatment technologies that aren't used as widely as they might be because of outdated county or state regulations. There are differences in regulations from one county or state to another that make little technical sense, but that installers and designers must struggle with. Meanwhile, states bicker endlessly about updates to onsite regulations, taking several years to accomplish what on the surface seems as if it should be a fairly simple exercise.

An association like NOWRA, properly funded and supported, can do a great deal of good for the industry and everyone in it. NOWRA's volunteer directors and professional staff clearly have industry members' interests at heart.

Other initiatives

A variety of other initiatives are in various stages of development at NOWRA.

The association remains active in an onsite wastewater Memorandum of Understanding (MOU) with the U.S. EPA. That group is creating a Septic Sense campaign aimed at homeowners with septic systems. It is being test-marketed in preparation for an autumn 2011 rollout. The goal is to make sure installers and service providers have information from the campaign to post easily to their websites.

The MOU group is developing a position paper intended to promote the benefits of decentralized systems to engineers, political leaders, developers, Realtors and others who make decisions about wastewater treatment. The target is people involved in larger systems, from 5,000 to 500,000 gpd, including commercial facilities, cluster systems, and small-community wastewater projects.

NOWRA has been working with industry partners and community development groups in seeking federal funding to demonstrate the positive economic impact decentralized wastewater solutions can have on small communities, especially those that are disadvantaged.

NOWRA has joined with the Maryland Onsite Wastewater Professional Association (MOWPA) to fight state attempts to ban onsite systems in new development. NOWRA has taken part in meetings between MOWPA and key stakeholders on both sides of the argument.

The association has also co-sponsored distance learning seminars, one on the Ottertail Water Management District, one of the oldest and most successful Responsible Management Entity arrangements in the U.S., and one on Enterprise Cascadia, a non-profit financial institution that provides grants or low-cost loans to homeowners who need to remediate onsite systems in sensitive sections of the Puget Sound watershed.

Many more initiatives are in the works.

Chicken or egg?

Historically, NOWRA has struggled to grow: Many industry practitioners have been content to rely solely on their state association, or have forgone association activity altogether. A number of state onsite associations have been highly effective. Imagine how effective NOWRA could be if all those associations pulled together on its behalf, and if more individual professionals got involved.

As with almost anything else, an industry association is what its members make it. While NOWRA strives with the resources it has to do the best it can for members and the industry as a whole, perhaps more practitioners should hark back to the immortal words of the late John F. Kennedy.

Ask not what NOWRA can do for you. Ask what you can do for your industry. Because what helps your industry helps you. Get behind NOWRA. Get on board. See what the strength of the entire force of industry members can get done. ■

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Subcontractor Richard Lowes uses an excavator to add pea gravel around a newly installed onsite system. (Photography by Tim Batchelor)

Eyes on the Future

Alex Mauck takes pride in staying ahead in the business, and his industry service activities help move his state's onsite profession forward

By Gil Longwell

Goodman Sanitation Inc., Troutdale, Ore.

OWNER: Alex Mauck

YEARS IN BUSINESS: 64

MARKET AREA: 50-mile radius

BUSINESS MIX: 45 percent new installations, 35 percent maintenance, 13 percent repairs, 7 percent service and real estate inspections

EMPLOYEES: 5

AFFILIATIONS: Oregon Onsite Wastewater Association

WEBSITE: www.goodmansanitation.com

"Reputation is everything," says Alex Mauck, third-generation owner of Goodman Sanitation in Troutdale, Ore., a suburb of Portland. "As customers get smarter, they seek out and build durable relationships with established businesses. It is hard to beat the reputation of a 64-year-old family business."

Mauck started riding in a vacuum truck with his dad when he was 4, and he has since learned to use every piece of equipment in the company's job-focused fleet. The company still pumps three to four septic tanks per day, but it's not pumping that brings the greatest rewards or challenges to Mauck, who operates in a 50-mile radius from Troutdale.

The company installs and services onsite systems and also performs repairs and system inspections for real estate sales. Mauck approaches every facet of the business with an eye toward establishing long-term customer relationships.

Down the road

Mauck's grandfather, Earney Goodman, started out hand-digging cesspools in 1946. When Alex's dad (Albert) took ownership in 1959, the company had begun installing septic tanks. "We used a Case 580 backhoe that was the first one sold in Oregon," recalls Mauck.

By 1996, when Mauck bought the company, it was headed toward a major equipment refocusing, this time away from the rubber-tired backhoe to a tracked vehicle with significantly less soil loading.

> **Like my predecessors in this business, I am always looking for innovative things to keep us ahead of the industry."**
> **Alex Mauck**

"Like my predecessors in this business, I am always looking for innovative things to keep us ahead

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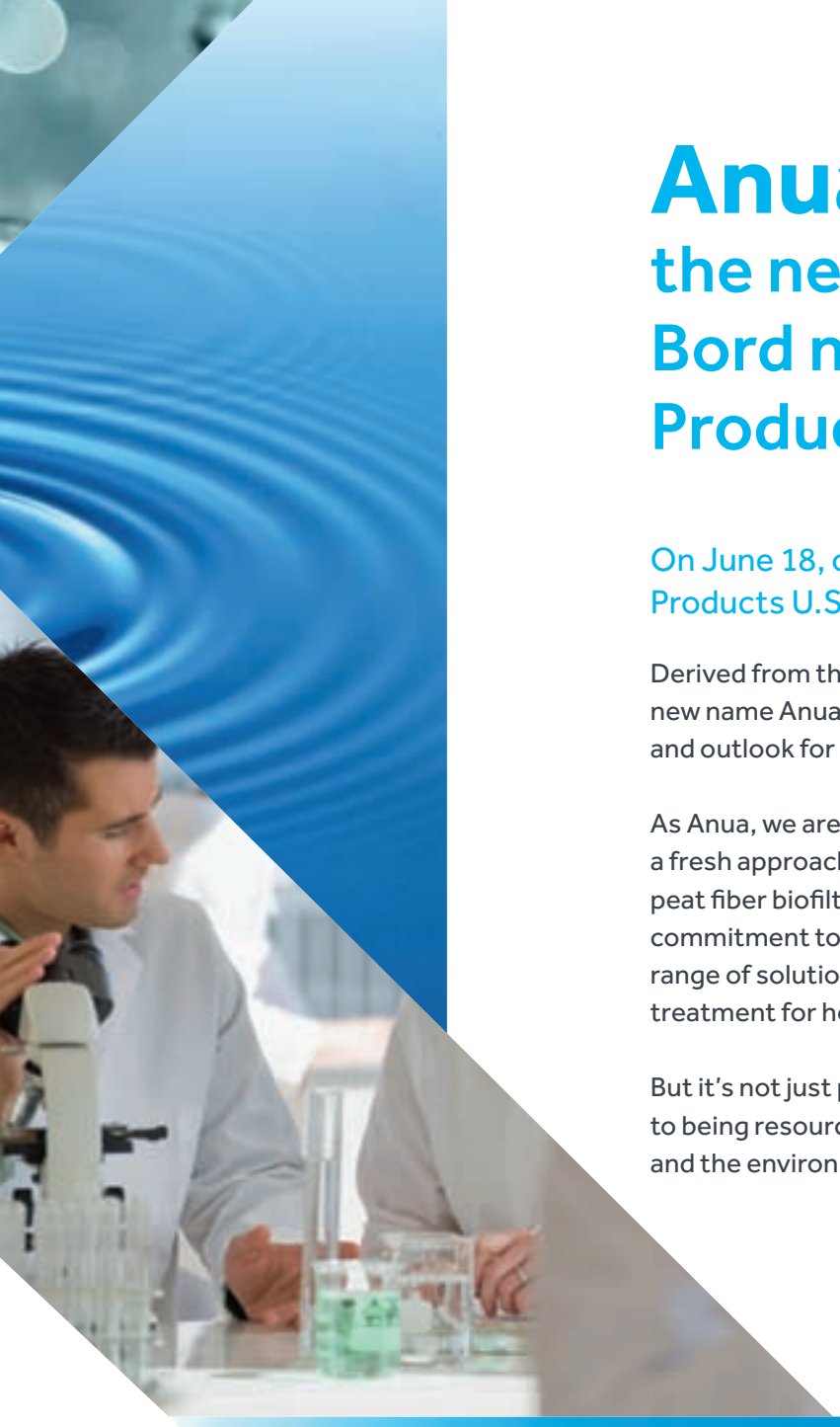

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Pea gravel is filled in around the onsite system to give it structure under pressure once it is buried.

of the industry," says Mauck. Until about 1981, lagoons were used to treat septage. Suddenly, lagoons were outlawed, and the City of Portland refused to treat septage. The pumpers refused to pump tanks until the city opened its facilities to septage. About that time, Goodman Sanitation built its own septage treatment facility. Today, Mauck has several thousand acres preapproved for land application of treated septage. More important, he now has options.

"With diesel at $4 per gallon, we either land-apply on 15 permitted acres nearby or unload at a city-owned plant," he says. "There is an economic disincentive to move septage over 100 miles for land application, even if the application cost is fractions of a penny per gallon."

"Our drivers are trained to recognize problems, speak knowledgeably to the owner about their findings, and offer solutions."
Alex Mauck

Mauck has seen a major shift in the role of onsite treatment. "Onsite systems, once seen as an interim treatment technology, are now long-term solutions," he says. He sees a need to teach homeowners to focus on the long-term needs of systems. He believes teaching basic do's and don'ts should continue, "but homeowners need to learn to develop a relationship with their system, an awareness of the components and their respective management needs."

Teaching awareness brings business opportunities: It is a door that opens to new customer relationships, the kind Mauck values and nurtures.

Situational awareness

Mauck looks at essentially every new technology that comes along. It need not be high-tech, reduce his costs or simplify an installation. If it lets him and his crew deliver a better installation, he'll give it full consideration. Driving his evaluation processes is attention to detail in three overlapping areas, all viewed through the window of future maintenance needs.

First, the technology must be designed to facilitate and simplify maintenance. Complex technologies that require complex servicing are less desirable than those that deliver the same results but are easier to service, or that perform well with longer maintenance intervals.

Second, the product's workmanship must match the workmanship he builds into every installation. The device must reflect the value his company places on quality performance.

Third, the system must interact well with the site and give service technicians easy access to components. Risers, for example, eliminate digging for service, facilitate access, cut time on-site, and reduce customer charges.

Modern components may be a bit more expensive, but the price of avoided installation and maintenance costs must become part of the decision to use them or not. "This is the customers' decision," Mauck says. "It is my responsibility to empower their decision-making."

A 4-inch Orenco biofilter is installed in a primary processing tank.

Not making work

Situational awareness makes every pumpout job an opportunity to identify other income opportunities. "Our drivers are trained to recognize problems, speak knowledgeably to the owner about their findings, and offer solutions," says Mauck. "Pumping lets us find work, but we do not use pumping to make work that is not needed. Likewise, we do not want

(continued)

The Network

Goodman Sanitation installs 20 to 30 onsite treatment systems a year, but recent years have not been typical. Owner Alex Mauck does not see size as a measure of success. Success flows from a diverse service menu and skilled employees willing to take the business where it needs to go, and to go where the business takes them.

Mauck takes the long view of the onsite industry and his place in it, and he has broad horizons when it comes to doing business. His greatest tool is not a backhoe or a computer – it is a network of connections to other industry professionals, to onsite resources, and to emerging ideas and trends.

Networking enables Mauck to have a global aspect to his business. He once sold a vacuum truck to a company in American Samoa. The Department of Education there approached him through his website. Delivering a truck just over 8,200 miles from home lets Mauck claim what may be the biggest service territory in the onsite industry. The sale included operator training, an assignment that Mauck took on himself.

If you say selling a truck does not count toward service territory, then he'll have you talk to Mike Clark about his experience installing a system on St. Thomas in the Virgin Islands. While a mere 5,900 miles away, it still defines an impressive reach for a small company in northwestern Oregon. Mauck's network goes far and wide, and he knows how to make it work.

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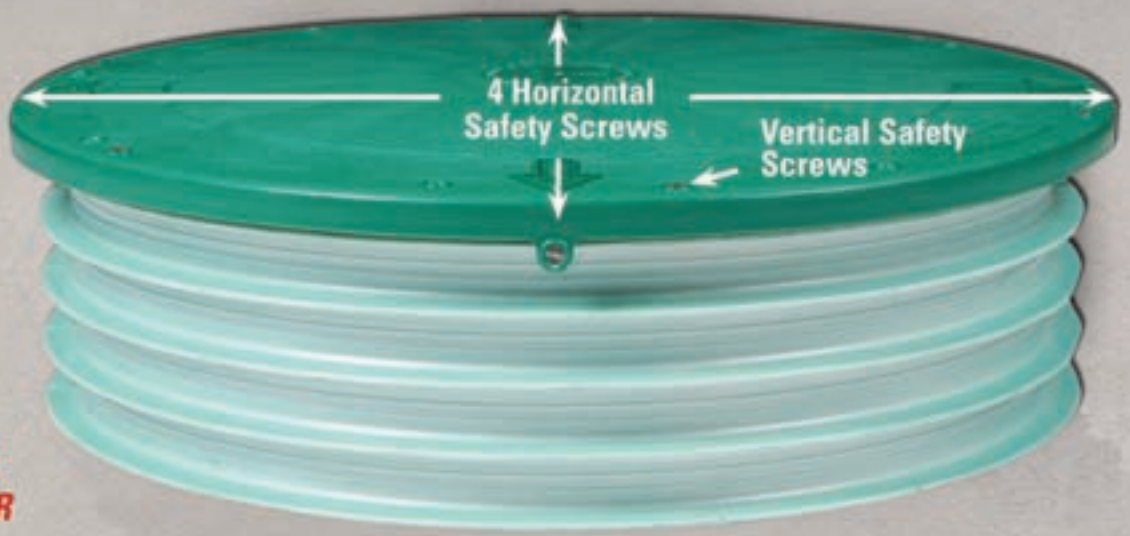

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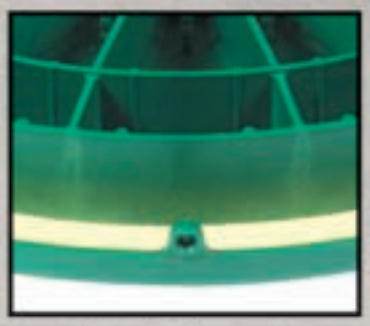

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to repair anything until we fully understand why it is not working."

Similar restraint is necessary when conducting presale inspections. "When we are hired to assess a system, we have no expectation, no predisposition toward a positive or negative finding," Mauck says. "We report what we find. Written standards and a systematic process go a long way to maintaining balance among all parties involved in an inspection transaction." Whether his customer is the buyer or seller, the report's conclusion will come out the same.

Before offering technology solutions or designs, Mauck poses a question to himself: "What would I do in this situation if this were my property and I would be dependent on the system? I constantly balance cost to my customer with the system's expected service life."

Mauck believes the industry responds to customers' desire to get the cheapest system possible without regard for long-term costs. Some competitors sell cheap systems to stay in the market. He often hears them say, "Just one more backhoe payment and I can cut my prices."

"Most likely, the fellow who thinks that way has no real idea of whether he is making money or not," Mauck says. He uses the word "affordable" in every conversation – he has removed "cheap" from his vocabulary.

"It is just plain dumb to end a tank installation without installing an effluent filter," he says. That is just one of many lessons his family has learned over the generations, and he does his best to incorporate all his lessons into every design. "Sand filters taught us the value of time dosing, but this adds costs and gets right back to the price vs. longevity tension," he says.

Contributions and rewards

Mauck has found success by wearing many hats in the industry as pumper, treatment facility owner, system installer, inspector, manufacturer of innovative onsite components, trainer, industry spokesperson and innovator.

The Goodman Sanitation team includes, from left, pump technician and salesperson Colbey Browne, owner Alex Mauck, office manager/job expediter/facilitator Teresa Hutchens, senior installation technician Mike Clark, and pump technician Michael Taylor.

A founding director of the Oregon Onsite Wastewater Association, he helped coalesce the industry in his state and opened a dialogue with the Department of Environmental Quality. He helped introduce the predecessor of the EZflow engineered geosynthetic aggregate (now made by Infiltrator Systems) across the Northwest, and he manufactured the product for about 10 years. His company also installed one of the first AdvanTex AX-20 units (Orenco Systems) in the state.

"If you are considering a 'box technology,' where all of the work is done inside the box, no matter where the box happens to be, there is no validity to the idea that the box must be tested all over the state," he says. He believes this adds needless costs, delays introduction of proven technology, and is frustrating.

To bring consistency to the technology approval process, he challenged the DEQ in court and won. To the credit of all parties, his action was seen as principled, not personal. "DEQ was not happy, but they could see that my intent was to better the industry, not my wallet," he says.

Shortly thereafter, he was invited to serve on the DEQ's Onsite Technical Review Committee, where his voice supports regulatory reform, consistency of approach, and mandatory training for onsite professionals. Mauck is an outspoken advocate for a national technology verification process that applies in every state. He has also served on the DEQ ad hoc onsite rules committee. "If we can have national building and plumbing codes, why can't we have a single set of regs and a single validation process?" he ponders.

"If you are considering a 'box technology,' where all of the work is done inside the box, no matter where the box happens to be, there is no validity to the idea that the box must be tested all over the state."

Alex Mauck

Mauck gains greatly from his contributions, and he contributes plenty. The rewards are priceless: Professional networking, credibility with installers and regulators, and a reputation for being approachable all help him to be a better installer, colleague and respected competitor.

Mechanical advantage

With all that, the business is on sound footing. The equipment, while not brand new, is bought and paid for, well maintained, and reliable. The fleet includes a vacuum truck with a 4,200-gallon aluminum tank on a 1995 International chassis, and a single-axle pumper with a 2,200-gallon tank on a 1994 Ford CF 8000 platform. Mauck likes the cab-forward design because it can get into tight spaces where competitors' bigger trucks can't go.

For digging, he can deploy a 1996 Case 580 Super E backhoe or a 1998 Komatsu PC 75UU2 trackhoe. A 1984 Chevy 1-ton pickup with a service body supports the crew, and a 2003 Duramax flatbed truck is on hand to haul equipment and supplies and pull trailers. His 1984 Mazda pickup has lots of life in it, and it meets his need to get from job to job.

Senior installation technician Mike Clark, pump technician and salesperson Colbey Browne, and office manager/job expediter/facilitator Teresa Hutchens, work with Mauck to keep operations moving smoothly. Mike Taylor performs equally well on the pumping and installation sides of the business.

Being comfortable speaking in a wide range of venues, Mauck is a vocal proponent for onsite systems as long-term treatment facilities. Whether in septage management, treatment technologies, operation and maintenance or homeowner training, Mauck constantly looks for opportunities that will keep him 10 years ahead of the industry.

In the meantime, while some take pride in installing the cheapest, Mauck takes pride in installing the best, and if that also makes his jobs more expensive, so be it. He knows that today's good reputation came from the good work of many yesterdays. ■

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Jim Anderson and Dave Gustafson are connected with the University of Minnesota onsite wastewater treatment education program. Dave is extension onsite sewage treatment educator. Jim is former director of the university's Water Resources Center and is now an emeritus professor, as well as education program coordinator for the National Association of Wastewater Transporters. Readers are welcome to submit questions or article suggestions to Jim and Dave. Write to ander045@umn.edu.

Pumps in Dosing Systems

Demand-dosed and timed-dosed systems require different approaches to pump control and high-water alarm configurations

By Jim Anderson, Ph.D., and David Gustafson, P.E.

Last month we wrote about systems in which a pump delivers effluent or sewage to a location where the rest of the flow is by gravity. This month, we look at systems where a pump is used for some type of pressure distribution and explore approaches to effluent delivery.

When we started in the industry, the most common applications were pumping to distribution laterals in a set of trenches or to the rock bed of a mound system. Today, there are many more pump applications, and often there is more than one pump in the system – as in pumping to a pretreatment media filter, and then to the final soil treatment and dispersal area.

Two delivery methods

There are two ways of delivering the effluent: through a demand-dosing regimen or by using a timer to control when the effluent is delivered to the next location in the system. Again, when we started, almost all effluent was delivered through demand dosing. But with the advent of more technology, some systems require or perform best with a timed system.

Under demand dosing, the pump starts when a volume of effluent fills the pump tank to a predetermined level. A system can deliver doses as many times per day as the use in the home fills the tank. Each time the pump starts, a volume of wastewater is delivered to the pressure distribution network.

Usually, the amount is determined by taking the estimated daily sewage flow and dividing by four. So, for a 600 gpd system, the pump would be set to run for each 150 gallons of sewage. The actual amount of effluent and the number of times the pump runs depends on the actual use on a given day.

(Demand-dosed) systems should be equipped with cycle counters or time meters to indicate the number of times the pump has operated and the length of time it has run.

Float control

The most basic form of demand dosing is a float-operated, motor-rated switch into which the pump is plugged. The float is a single wide-angle or differential float control, called a piggyback control. These systems should be equipped with cycle counters or time meters to indicate the number of times the pump has operated and the length of time it has run.

This information allows a service provider or installer to know how much effluent the pump has delivered. This means there should be a control panel to facilitate obtaining the information on pump operation. In addition, in any pumping situation, a high-water alarm float should be wired into a separate circuit to alert the owners to a pump malfunction.

Because a single float has limited range of motion, the more common setup in systems today uses two separate floats for turning the pump on and off. These floats are attached to a float tree to make them easier to remove and to allow removal without taking out the pump at the same time. When two floats are used, the pump starts when the effluent rises to the "on" float elevation, pumps down to the "off" float elevation, and turns off. Here again, there should be a

There are two ways to deliver effluent: through demand-dosing or by using a timer to control when the effluent is delivered to the next location in the system. Shown are systems from SJE-Rhombus.

separate high-water alarm float.

In systems where flows are high enough and storage is limited, duplex pumps can be used. When the effluent rises to the pump "on" elevation, the first pump starts and delivers the dose volume. The next time, the second pump delivers the effluent.

If one pump fails, or if the use of the system is excessive, the effluent rises to the level of a lag switch, which starts the resting pump. To give warning that one pump has malfunctioned or that there are excessive flows, an alarm switch is positioned below the lag switch, or the two can be combined. There needs to be an alarm to alert the user to problems.

Timed dosing

For timed dosing, an adjustable timer controls the pump rest interval and run time for specific dose volumes and times. Peak flows (morning and evening) from a residence are stored and then dosed evenly throughout the day. Using this approach rather than demand dose allows the effluent to be spread out more equally during the day. For many media filters and aerobic treatment units, this improves treatment performance.

Timed dosing also uses floats to control operation. However, the float switch is a signal float instead of a motor-rated switch. When the effluent rises to the preset level, the float sends an electric signal to the control panel. This enables the timer.

After the prescribed rest interval, the pump delivers the specified volume of effluent by operating for the time it takes the pump to deliver the amount of the dose. Often, other devices, such as pressure transducers, are used instead of floats.

Many configurations are possible with timed dosing. One method involves the use of a separate redundant "off" float. When this float is in the "off" position, it protects the pump from running if not enough effluent has been generated. The timer enable and the redundant "off" function can be controlled by the same float.

Another option is a peak enable float, installed between the enable and alarm floats. When activated during high-flow events, this float allows the pump to run, resulting in more dosing events during the day. These functions can also be controlled by a single float, but it is important to set them so that the flow does not exceed the capacity of the next part of the system.

Timer-override floats should not be used. This configuration changes the function of the timed system to a demand-dosed system until the effluent in the tank returns to normal operating levels. If the system functions continuously because flows are routinely exceeded, this will hydraulically overload the system. Again, there should be an alarm wired on a separate circuit – one the user cannot easily ignore.

Equalizing flow

One management concept that is being used more often is flow equalization. Simply put, this reduces stress on the system during peak flows by storing effluent and delivering it at lower-use times during the day. Usually, the flow is equalized over 24 hours, or longer if necessary.

In any case, if the effluent is to be stored, there must be enough tank capacity, and a timer system is required. For single-family homes, the pump tank capacity should be at least 1,000 gallons, or twice the estimated daily sewage flow. For other systems, the design flow and the required storage should be determined from real flow data. Usually, the data needs to be collected for 45 to 90 days. Next we will discuss pump installation. ■

"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.*

California Proposal Seeks Nitrate Testing

By Scottie Dayton and Doug Day

State onsite rules proposed in California would require agencies to test for nitrate entering the groundwater, but agency officials contend that they already test, and that studies to monitor nitrate show the levels are safe.

Agencies issuing permits for onsite systems require testing of effluent on discharge. County health departments test water quality for nitrate when new wells are drilled, and many water utilities annually sample wells for nitrate. Utility officials say nitrate averages are below state drinking water standards. County officials say focusing on additional monitoring would cost the equivalent of five full-time positions.

The Central Coast Regional Water Quality Control Board proposed amendments to update the basin plan. If passed, regulations would require agencies to streamline new onsite system permits and monitor system maintenance. Approval by the State Water Resources Control Board and the Office of Administrative Law was expected to take about six months.

Also, public hearings began in May for new onsite wastewater rules in California based on legislation (AB 885) that passed back in 2000. The first round of the latest hearings was to get comments about the scope of the project. Additional workshops were to be scheduled in fall to take comments on the final draft regulations.

According to a fact sheet issued by the agency, the regulations will affect existing systems next to an impaired body of water, new or replacement systems, and systems that have failed. That is a different approach than was used to develop earlier regulations in 2008 that did not pass. Rather than one statewide standard, the fact sheet says, "The new proposed policy approach now relies extensively on local county and city programs – as is currently the practice."

Florida

The state senate passed legislation that charges citizen complainants with the burden of proof to show how proposed development projects would hurt the environment. It did not repeal a law requiring septic tanks to be pumped and inspected every five years or pass a law lifting the 2016 ban on land application.

A provision in the budget bill stopped the septic mandate from taking effect on July 1 by requiring the legislature's Budget Commission to ratify any legislation that increases regulatory costs and adversely affects economic growth.

Rhode Island

Rep. Frank Ferri proposed a five-year extension of the Jan. 1, 2013 deadline for residents with cesspools within 200 feet of water to tie into sewers or install onsite systems. The Department of Environmental Management identified three neighborhoods with an estimated 1,200 homes affected by the 2007 law. The extension was necessary because sewer construction would not be completed by the deadline.

Minnesota

Mower County Environmental Services received additional grant funds from the state Board of Water and Soil Resources to continue its inventory of onsite systems. Many of the estimated 700 systems were installed before 1996 or have not been inspected, requiring staff to visit sites and assess health threats.

Washington

A proposed rule change by the Kitsap County Health District would allow drainfield setbacks for advanced treatment units to be 75 feet from potable wells or water instead of 100 feet. The revision mirrors state regulations.

Oregon

Proposed rules by the state Department of Environmental Quality would create a voluntary program for homeowners to irrigate with graywater. A three-tier permitting system would define requirements based on the volume of graywater. More information is at www.deq.state.or.us/wq/reuse/gwrulemaking.htm#back.

Alabama

The state legislature considered a bill to prohibit septic system users from being charged a fee for not using a community's sewer services. The proposal centers on efforts of Jefferson County to establish such a fee for the 45 percent of its residents using septic systems to help cover its sewer system's $3.2 billion debt.

Maryland

A task force will study septic tanks and ways to reduce pollution from them. Governor Martin O'Malley issued an executive order in April forming the group after a bill that would have limited septic tanks in the state failed in the last session of the General Assembly in the face of opposition from homebuilders, septic system installers and local officials.

In his order, O'Malley said 120,000 new onsite systems are expected in the next 25 years, adding to the 426,000 now in use. The Task Force on Sustainable Growth and Wastewater Disposal will make recommendations on the impact of septic systems on "nutrient pollution, land preservation, agri-business, and smart growth" and issue a report by December. ■

Caring for Media Filters

Proper maintenance of all components is necessary to make sure single-pass or recirculating filters perform well and last long

By Kit Rosefield

Servicing a recirculation device.

For those riding the Treatment Train for the first time, welcome aboard the systematic process of evaluating the components of an onsite wastewater treatment system. In this edition, for those who may have siting or soil limitations, we will discuss one option for advanced treatment: media filters.

One of the first questions we hear from system owners is: Why do I need this fancy system? While we hope this question has already been addressed by the system designer, we often find ourselves patiently explaining the site and soil limitations that can dictate advanced treatment.

I never try to determine what the deciding factors on a particular site were because I am not a designer and was not involved in that process. Instead, I explain how certain conditions such as high groundwater, soils that allow fast movement of water, soils with a limiting layer that restricts flow of water, or steep slopes may be cause for advanced treatment.

There are many types of media used in filter design and construction, including sand, gravel, peat, textile fabric, and other synthetic materials. We typically see two basic configurations: a single-pass or recirculating flow path.

There are two basic categories of advanced treatment technologies: media filters and aerobic treatment units (ATUs). We will address ATUs in the next edition of "O&M Matters". Media filters come in many configurations and sizes. Some are engineered and custom built while others are packaged, off-the-shelf proprietary units. Either way, the basic operation and maintenance requirements are the same.

What is a media filter?

There are many types of media used in filter design and construction, including sand, gravel, peat, textile fabric, and other synthetic materials. We typically see two basic configurations: a single-pass or recirculating flow path.

In most cases a dosing pump tank is used to apply a specific volume or dose of pretreated wastewater or septic tank effluent to the media surface. Proper dosing is important, as the designer has sized the media filter to ensure that the effluent that has passed through the filter (filtrate) is adequately treated before dispersal into the soil treatment unit, which most likely has a limiting condition.

Single-pass media filters can have an internal filtrate collection system, known as an underdrain, that uses a discharge pump tank. They can also be bottomless, allowing the treated effluent to be dispersed back into the natural environment below.

The latter are typically referred to as aboveground systems and include mounds, bottomless sand or peat filters, or at-grade systems. These aboveground systems serve both as the advanced treatment unit and the soil treatment

unit and are often used for sites where high groundwater is an issue.

Recirculating media filters use a bit more energy but have the benefits of a smaller footprint and the ability to provide a higher level of nitrogen reduction. The bottomless single-pass is less maintenance-intensive.

Why perform O&M?

To understand why media filters need maintenance, consider two words: biological and filter. As with any biological process, bacteria reproduce and die off, creating biosolids. The filter aspect speaks for itself: It is a physical process of removing small particles.

If biosolids and other particulates are not removed from the distribution system that applies wastewater to the filter, the solids will be pushed through the distribution orifices into the media, where it will accumulate and eventually cause fouling.

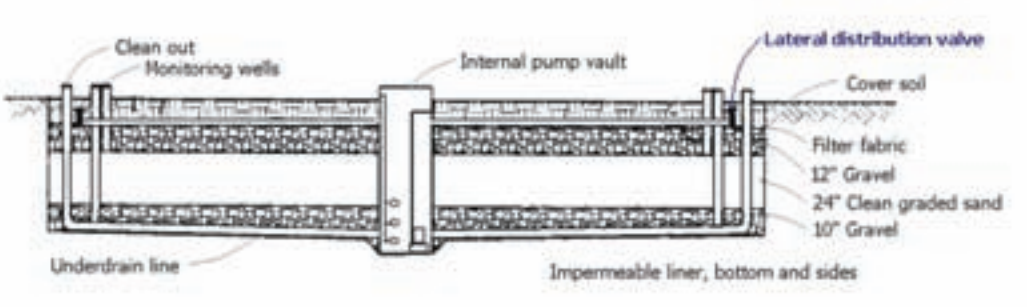
In addition, there are numerous system control sensors, pumps and in some cases, valves that if not serviced may fail, causing much greater problems, such as flooding of the media, resulting in undesirable saturated conditions.

If the media becomes saturated, the aerobic bacteria die off, and anaerobic conditions occur. It is important to note that aerobic bacteria metabolize at about 10 times the rate of anaerobic bacteria. That's why unsaturated conditions are important for achieving the expected performance of a media filter.

So let's start with the basics of performing O&M on the simpler single-pass systems. As with all onsite system service, it is important to inspect the entire system area first to ensure there are no unacceptable conditions before we begin adding service-related water to the system.

Most engineered media filters are designed with inspection ports to verify any subsurface ponding conditions within and around the filter. Record the liquid levels in all inspection ports before service. In some cases, inspection ports or the design of proprietary units allow inspection of the media itself. Routine inspection of the media can identify issues before they become problems.

Also take note of the condition of the media containment structure and of the toe of the mound and at-grade systems. The toe is the external area where the constructed portion of the unit meets the natural soil and is the place most likely for seepage if the native soil was not adequately prepared or was damaged during construction.



ABOVE: Single-pass sand filter with underdrain.

RIGHT: Above-ground bottomless sand filter.

We want to note that the vegetation around and atop the unit is well maintained and not a type that will produce deep roots that might affect the media or distribution laterals. In addition, record all control panel data, such as the cycle counter and elapsed time meters, as this data is most valuable in calculating system use and flow information.

Effluent distribution

All media filters have some type of effluent distribution system designed to evenly distribute pretreated wastewater over the media surface. In some peat filter applications, it could be gravity, and in other cases it might be a spray system, but in most cases it is pressure-dosed distribution laterals with orifices and shields.

In any case, routine cleaning of the distribution system is important for the longevity of the system. When pressure-dosed laterals are used, a distal head test reveals the condition of the distribution system before service. You might find some laterals have a higher distal head than others, indicating either plugged orifices or possible leakage in the distribution piping.

Flush, clean, flush

We then will flush, clean, brush or hydrojet the laterals, then flush them again to make sure all loosened solids are removed. The configuration of the distribution lateral distal end can greatly affect serviceability. Good access and the ability to brush or hydrojet the laterals is critical.

You will most likely need to add water to the pump tank to perform the service, so it is important to measure tank solids levels before performing service to determine if pumping and cleaning will be necessary – you don't want to send unwanted solids that could plug orifices into the distribution system.

Next, as good practice from a safety perspective, lock out and tag out the electrical breakers to the system controls before disassembling, inspecting and cleaning all dosing tank components. Verify that all sensors, pump screens and pumps are operable and that all plumbing and electrical connections are in acceptable condition.

Upon reassembly of the dosing tank components, flush the distribution system again to make sure any debris loosened from other components is cleared from the system. Now, perform a post-service distal head test and balance the distribution system as necessary.

This is also a good time to verify the pump delivery rate through a drawdown test. If the pump delivery rate has changed, consider recalibration of the system. Over time, pumps will wear and will not deliver the same volume of fluid as when they were new. While recalibration is not as much a factor in demand-dosed applications, it is important if the pump relies on a timer, as a weaker pump will not deliver the specified dose to the media in the original set dosing time.

Internal pump basin

Now, let's add an internal pump basin for a single-pass filter that collects and stores filtrate for discharge to a separate soil treatment unit. All the tasks noted above for the dosing tank will need to be repeated for the internal pump basin.

In addition, you now have a filtrate collection

underdrain to inspect and service. The underdrain collects filtrate that has moved through the filter media as gravity then diverts it to the internal discharge pump basin or to a recirculation valve if applicable. It may be necessary to periodically clean, brush or hydrojet the underdrain to prevent the buildup or transfer of unwanted biosolids.

Recirculation components

If the design incorporates a recirculating filter, you now have a recirculation/process tank to service, as well as some type of recirculation device. Before servicing any system involving a recirculating device, remove the device so as not to send any debris from the service activities to the discharge tank.

Service the tank as noted above, to refresh, lock out/tag out, disassemble, inspect, clean and verify operation of all plumbing and electrical components. Next, disassemble, inspect, clean and reassemble the recirculation device. Be sure to inspect and lubricate any rubberware that may be prone to drying and cracking.

It is also a good practice to verify the recirculation ratio of the filter to ensure that it is within the parameters specified by the designer. The recirculation ratio is the number of times the volume of effluent that is discharged to the soil treatment unit is passed through the media in 24 hours.

In other words, if a system is discharging 300 gallons of treated effluent daily to the soil treatment unit, the filter must have recirculated 1,200 gallons during the 24 hours before discharge to achieve a 4:1 recirculation ratio. Here is an instance where the cycle counters and elapsed time meters provide data that enable you to program the controller to reset the recirculation ratio.

So, let's recap some of the important aspects of servicing media filters:

- Inspect all tanks and their components to ensure proper operation (control sensors, pumps, plumbing, electrical)
- Verify that all site conditions surrounding the media filter are acceptable (no surfacing effluent, erosion or inappropriate vegetation)
- Monitor and record all liquid levels in available inspection ports
- Record all control panel data to calculate average daily flow
- Inspect the media if inspection ports or removable covers allow
- Service the distribution system, cleaning the laterals, testing the distal head, and balancing of the pressure distribution system, if applicable
- If there is an underdrain, inspect and clean as needed
- Remove, inspect and service the recirculation device
- Calculate the recirculation ratio based on data loggers
- Recalibrate the recirculation pump if necessary

In our next "O&M Matters," we will look at aerobic treatment units. Watch for future articles on disinfection and drip dispersal. The content of this article is based on the Consortium of Institutes for Decentralized Wastewater Treatment O&M Service Provider training program, delivered nationally by the National Association of Wastewater Transporters. Check the NAWT website (www.nawt.org) for a program near you.

About the author

Kit Rosefield is an adjunct instructor at Columbia Community College and a trainer for NAWT and the California Onsite Wastewater Association. His company, Onsite Wastewater Management in Mi Wuk Village, Calif., has a consumer education service at www.septicguy.com. Reach him at 209/770-6760 or kit@septicguy.com. ■

Being Helpful

Informational items from NOWRA and other sources can help you provide valuable education to customers about their onsite systems

By Eric Casey

Ask homeowners about almost any aspect of their home and chances are they will regale you with facts – the kind of exterior paint, the type of furnace, all the cool features of the new refrigerator. But ask about the septic system and the response is likely to be a blank stare.

Perhaps because it is out of sight and out of mind, the septic system is among the least known features of the average home. For owners, the first time they learn anything about their system is when it needs repair. But it doesn't have to be that way.

There is a ton of information available to consumers to help them understand and correctly manage and maintain their septic systems. Helping consumers understand their systems by providing reliable information is not just a nice thing to do – it's good business.

The more you help educate consumers, the more likely they will look to you when they need help, and the more likely they will refer you to a neighbor. With that in mind, here is a brief overview of the NOWRA resources available to you for educating customers.

Septic Locator. This online resource (www.septiclocator.com) helps homeowners find local qualified professionals for the specific services they need. Users can search for providers in a variety of ways: by Zip code, geographic radius, state, city, company name or services desired. They can use multiple search criteria, so they can find just what they are looking for. Each listing contains the provider's contact information, along with the services offered.

Homeowner Folders. These are excellent leave-behinds for installers or service providers. They are designed as a one-stop solution for a homeowner. The sturdy 9- by 12-inch folders contain detailed information about onsite systems and how to care for them. It can hold all the paperwork associated with a system and has a place to record regular system maintenance.

It also includes a handy file tab so that it can be kept in a file cabinet with other information about household equipment and appliances. Thousands of copies have been purchased and distributed by installers, service providers, pumpers and health departments. You can buy printed folders at the NOWRA website (http://www.nowra.org/onsite_guide.html). If you prefer, you can download the folder design and print copies for yourself.

Bill Stuffer. You can also visit the website to download a bill stuffer that advises consumers about what they should not put down the drain. This compact document fits conveniently in mailings to new or existing customers. It's set up so you can easily save it and print it on demand.

You can also find excellent consumer-focused information in a number of other places. Two of the best are the National Environmental Services Center (NESC) and the U.S. EPA.

NESC was established 30 years ago to provide assistance, solutions, and knowledge about water and wastewater to small communities and consumers. The website features a host of useful information, including publications that help consumers understand what their septic systems do, how to maintain them, why they need regular service, and how to protect nearby groundwater resources. NESC has a hotline (880/624-8301) where consumers can ask specific questions about their systems. Visit www.nesc.wvu.edu.

The more you help educate consumers on their systems, the more likely they will look to you when they need help, and the more likely they will refer you to a neighbor who needs assistance.

The EPA also has a variety of publications and technical documents for consumers. Three of the better items are:

- *A Homeowner's Guide to Septic Systems*
- *Homeowner's Septic System Checklist*
- *A Homeowner's Guide to Evaluating Service Contracts*

Additional technical information is available on the site for consumers who wish to delve more deeply into the topic. If you haven't already, check out these items and see how they can help you be more valuable as a resource for your customers.

About the author

Eric Casey is executive director of the National Onsite Wastewater Recycling Association. He can be reached at 800/966-2942 or wecasey@nowra.org. ■

Distribution Systems and Equipment

By Pete Litterski

Low- to high-flow splitting

The **Tru-Flow splitter** system from **Clarus Environmental** can split effluent flows from 0.1 to 30 gpm into two to five distribution lines. The splitter is made of lightweight, noncorrodible materials. The bubble-level design allows for postconstruction adjustments, solving problems of distribution box settling. The unit may settle as much as 15 degrees front-to-back or 12 degrees side-to-side and, when adjusted, will still evenly split effluent. A 4-inch riser to the surface gives access for inspection and maintenance. 877/244-9340; www.clarusenvironmental.com.

Grinder pumps

Jung Pumpen commercial-grade grinder pumps from **Pentair Water** offer a high-torque cutting system able to steer pump-damaging debris away from the pump hydraulics. Users can select from 2 to 7.5 hp pumps with a continuous-duty rating, advanced dual-seal leak detection, and energy-efficient air-cooled motors. 888/957-8677; www.jungpumpen-us.com.

Dividing effluent flow

Distribution boxes from **Tuf-Tite** offer flexibility in dividing septic tank effluent flow with the installation of the company's Speed Levelers in each outlet. The boxes are available with four, six, seven or nine holes. The levelers can be inserted in each outlet and turned to adjust the level of flow. Risers are available on the four- and seven-hole boxes. All boxes come with snap-in outlet seals to match the pipe used in specific situations, including corrugated pipe. 800/382-7009; www.tuf-tite.com.

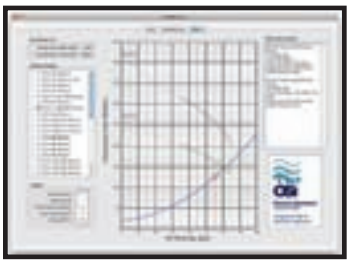
Versatile pump

Hydraulic submersible pumps from **Griffin Pump & Equipment** are available in axial-flow and trash-handling models. The pumps range from 4 to 24 inches and are designed for volumes up to 20,000 gpm and head conditions up to 140 feet. The impellers can handle solids up to 3 inches. The pumps are well suited to high-suction-lift applications. 866/770-8100; www.griffinpump.com.

Submersible pump

The **Bullet High Head** submersible effluent pump from **Septic Services** has a stainless steel enclosure for corrosion resistance, self-lubricating impellers for operation under extreme conditions, and a 10-amp, three-wire continuous-duty motor. The design allows effluent to enter at the pump's screened midsection rather than at the pump base, reducing debris clogs.

The pumps can be used in residential, commercial and industrial water systems, for farm clean-water use, and in applications including spray irrigation, drip or mound systems, and long-distance pumping. The BP10 has a maximum head of 149 feet at 10 gpm, and the BP20 has a maximum head of 90 feet at 20 gpm. 800/536-5564; www.septicserv.com/store.



Pump selection software

PumpSelect software from **Orenco** helps users size pumps for onsite applications, including pressurized and nonpressurized dispersal areas. Users enter system parameters, and the software provides fast hydraulic calculations, pump curves, float settings, and dose volumes for all Orenco pumps, including previous models.

Parameters include pipe length and dimensions, number and size of orifices, change in elevation, flow rate, and size of discharge assembly. The original software is used solely for hydraulic calculations, while EasyPak/ProPak Select also calculates tank sizing, reserve volumes and timer settings. Both versions include an FAQ section for new users, pump technical data, and sample system drawings. 800/348-9843; www.orenco.com.

Low-volume dripperline

Bioline non-potable polyethylene low-volume dripperline from **Netafim** is designed for use with domestic septic strength effluent to secondary-treated effluent. Each dripper is debris resistant, pressure compensating, continuously self-flushing, and vinyzene-impregnated to prevent microbial slime buildup. Flow rates include 0.4, 0.6 or 0.9 gph. Dripper spacings are 12, 18 or 24 inches with a pressure range of 7 to 70 psi. The dripperline works in environmentally sensitive areas, tight soils, slopes and odd-shaped areas. 888/638-2346; www.netafimusa.com/wastewater.

Rockless drainfield system

The **Multi-Pipe (MPS) Rockless** drainfield system from **Plastic Tubing Industries** offers an alternative to gravel, chambers and foam cubes. The MPS technology uses a system of corrugated pipes to replace voided areas within a gravel system. The system includes a reduced footprint, lower profile, and increased transpiration and evapotranspiration area. All MPS configurations are constructed with recycled materials in the U.S. 800/780-5121; www.pti-pipe.com.

Antisiphon dripline

Geoflow's antisiphon dripper allows design of a dispersal field for any landscape. The dripper is slow to drain water when the pump turns off so it is less sensitive to vacuum than standard pressure-compensating driplines and the dependency on airvents is not as critical. The dripline provides protection against root intrusion with ROOTGUARD molded into each emitter and protection against biological buildup through the turquoise Geoshield layer. 800/828-3388; www.geoflow.com. ■

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Healthy Alternative

Peat biofilters and a UV disinfection system enable replacement of a mobile home's onsite system discharging directly to a creek

By Scottie Dayton

For 12 months or longer, sewage ponded under a three-bedroom mobile home in Alkol, W.Va., until it spread 30 feet beyond the skirting. The low-income family qualified for a replacement system through a project of the Lincoln County Commission and state Department of Environmental Protection (DEP).

"Our goal is to protect public health and water quality by preventing *E. coli* from contaminating the Left Fork Watershed of the Mud River," says Ric MacDowell, project lead investigator of the Lincoln County Commission Green Wastewater Projects in Hamlin. "We set a benchmark of no more than 200 *E. coli* colonies per 100 ml."

The project required alternative systems to be NSF 40 Certified and approved by the DEP and the Department of Health and Human Resources. Puraflo peat fiber biofilters from Anua, formerly Bord na Mona, met the qualifications, producing effluent averaging less than 10 mg/l TSS and BOD and 99 percent fecal coliform reduction with no pathogens.

"This system also required UV disinfection for direct discharge, necessitating an NPDES permit from the DEP," says MacDowell. Timothy Davis, owner of TR Davis in Branchland, won the bid.

"Of all the jobs, this home was the most dreaded," he says. Besides the health hazard, he faced cold, snow and limited space. After the system went into operation, direct-discharge effluent samples had less than 10 *E. coli* colonies per 100 ml.

Site conditions

Soils, which failed a percolation test, are sandy to sandy loam with the water table three feet below grade. The 0.75-acre lot is on a slight hill 100 yards from Flat Creek.

Timothy Davis uses a Kubota U45 tracked mini-excavator to dig holes for the tanks in the small space between the home, property line and creek. (Photos courtesy of Appalachian Photography)

System components

Based on state code requiring one module per bedroom, Davis sized the system for 450 gpd. Major components are:

- 1,000-gallon dual-compartment TW-Series polypropylene septic tank with A300 Zabel effluent filter (Polylok). Tanks made by Infiltrator Systems.
- 1,000-gallon single-compartment polypropylene dose tank with Champion 1/2 hp low-head pump and Infiltrator Systems transducer
- Three 150 gpd Puraflo peat biofilter modules set in series
- 3G ultraviolet disinfection chamber from Salcor
- Aquaworx IPC control panel from Infiltrator Systems

System operation

The septic and dose tanks are set in series. After wastewater gravity-flows into the dose tank, the transducer compares the air pressure in the bell to the air pressure in the tank to determine the liquid level, cycling the pump about every two hours.

In 60 seconds, it pumps 36 gallons through a 2-inch Schedule 40 PVC force main to a manifold that sends 12 gallons to each module. A distribution grid at the top of the units evenly doses the peat.

System Profile

Location:	Alkol, W.Va.
Facility served:	Three-bedroom mobile home
Designer/Installer:	Timothy Davis, TR Davis, Branchland, W.Va.
Site conditions:	Sandy to sandy loam, failed percolation test, water table three feet below grade
Type of system:	Puraflo peat fiber biofilters, Anua
Hydraulic capacity:	450 gpd

TOP: Raw sewage ponds in the northeast corner under the mobile home. RIGHT: A leak in the hose surprises TR Davis employee Michael Rakes as he fills the septic and dose tanks half-full of water.

Purification occurs as the liquid percolates through the media over 36 to 48 hours. The peat also suppresses odors. Effluent from the modules gravity-feeds through 2-inch PVC pipe to the UV chamber.

Water flows down and around the UV lamp in a Teflon antifouling sleeve, making a semicircle before discharging through 25 feet of 4-inch PVC pipe buried 18 inches deep. The outfall is into Flat Creek, which is part of the Left Fork Watershed.

> **"We had limited space between the home, property line, and creek, and there was an underground telephone cable to avoid. I saw no evidence of ponding around the existing drainfield, confirming our suspicion that effluent hadn't reached it in a long time."**
>
> **Timothy Davis**

Installation

Davis visited the property to decide where to install the components, then submitted his design to the DEP for approval. "We had limited space between the home, property line, and creek, and there was an underground telephone cable to avoid," he says. "I saw no evidence of ponding around the existing drainfield, confirming our suspicion that effluent hadn't reached it in a long time."

While the crew crushed and filled in the old septic tank, Rick Frye, owner of Frye Septic in Spurlockville, pumped the sewage ponded in the northeast corner under the home. The area was allowed to dry as the crew broke through the frost barrier and dug holes for the tanks with a Kubota U45 tracked mini-excavator.

"There was a slight slope in front of the house that didn't have a high water table, and that is where we installed the system," says Davis. "The septic and dose tanks went in a 20- by 20-foot space, and the peat modules in a 10- by 30-foot space."

Cold weather and snow returned as the workers set the tanks. They filled the septic and dose tanks half-full of water, plumbed them, and backfilled with native sand. The peat modules, each weighing 1,800 pounds, sat level on 6 inches of gravel.

Davis used a float tree bracket from SIM/TECH FILTER to mount the transducer. "Transducers are less labor intensive and easier to install than floats, and trash doesn't hang up on them," he says. The telemetry panel with pressure transducer technology allows real-time monitoring of the pump and liquid levels. It also relays alarms and enables Davis to troubleshoot the system. He mounted the control panel on the home.

Meanwhile, a worker entered the 3-foot-high crawl space under the home on hands and knees, unrolling plastic sheet before him. He saw that the 4-inch thin-wall lateral was disconnected from the toilet. The slope of the hill then directed the sewage to the northeast corner.

He replaced the entire lateral with 4-inch SDR35 PVC pipe and covered the ground with plastic to help subdue odors. "The installation was no piece of cake, but it was average for our area," says Davis. MacDowell and Davis educated the residents on how to take care of the system.

Maintenance

The state requires direct-discharge systems to have perpetual maintenance agreements. The installer provides service for the first two years. Every six months, a technician opens the septic and pump tanks to check the scum, sludge and water levels, and cleans the effluent filter and UV lamp. The technician then runs a cycle on the pump, inspects the peat media for grease or ponding, looks for solids or particulate in the biofilter effluent, and checks the control panel and transducer.

The peat should last for 15 years or more, after which it will be vacuumed out and replaced. Davis expects to pump the septic tank every three to five years. MacDowell draws the direct-discharge effluent samples. ■

MORE INFO:

Anua
800/787-2356
www.anua-us.com
(See ad page 11)

Champion Pump Company
800/659-4491
www.championpump.com

Infiltrator Systems, Inc.
800/221-4436
www.infiltratorsystems.com
(See ad page 9)

Polylok, Inc.
877/765-9565
www.polylok.com
(See ad page 40)

Salcor, Inc.
760/731-0745
(See ad page 19)

SIM/TECH FILTER, Inc.
888/999-3290
www.simtechfilter.com
(See ad page 25)

Gorman-Rupp Names Knudsen Eastern District Manager-Engineered Systems

Eric Knudsen

The Gorman-Rupp Co., Mansfield Division, named Eric Knudsen Eastern District Manager-Engineered Systems. He will cover Maine, Vermont, New Hampshire, New York, Massachusetts, Connecticut, Rhode Island, Delaware, Maryland, Pennsylvania, Virginia, West Virginia and North and South Carolina. Based out of Clifton Park, N.Y., Knudsen has 15 years experience in the municipal and industrial pump market.

Roth Names Harrison Regional Sales Manager-Canada

Roth Industries Inc. named David Harrison Regional Sales Manager-Canada. Based out of Smiths Falls, Ontario, he is HRAI certified in residential heat loss/gain, hydronic design, duct design, ventilation design and installation, and CGC certification, installation and design with the Canadian Geo-Exchange Coalition. He also has extensive training and experience in hydronic solar design.

Liberty Pumps Holds National Sales Meeting

Liberty Pumps held its national sales meeting at the Opryland Hotel in Nashville, Tenn. The meeting was attended by 100 sales representatives and included agencies from both the U.S. and Canada. The meeting highlighted new products, provided hands-on training and an awards ceremony recognizing top agency performance in 2010.

Elastec/American CFO Jeff Bohleber (right) receives the 2011 Illinois Export Award from Gov. Pat Quinn.

Elastec/American Marine Receives Export Award

Elastec/American Marine, Carmi, Ill., received the 2011 Governor's Export Excellence Award in the small-sized category for continuing excellence during Illinois Export Week, June 20-24, in Chicago. The award was presented by Gov. Pat Quinn, the Illinois Department of Commerce and Economic Opportunity and the Office of Trade and Investment.

Bio-Microbics Receives Kansas Export Award

Bio-Microbics, manufacturer of decentralized wastewater treatment systems, received the 2011 Kansas Governor's Exporter of the Year Award. The award, presented by Gov. Sam Brownback, recognized the Shawnee, Kan., company for exceptional international marketing success. Bio-Microbics was among five finalists announced by the Kansas Department of Commerce in conjunction with the Kansas International Trade Coordinating Council. Candidates were judged on effective use of international distributors or offices, foreign language promotional materials, innovations in global marketing, joint ventures, long-range strategies for future growth, new products, new export markets, percentage increase in jobs and sales and participation in international expositions. ■

For more information please visit:

www.pumpershow.com

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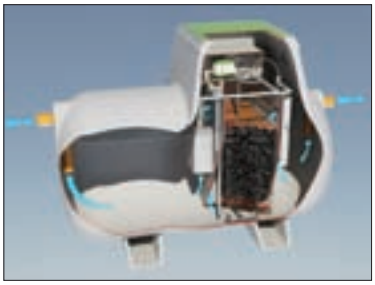
Xypex Offers Crystallization Concrete Waterproofing

Crystallization concrete waterproofing from Xypex Chemical Corp. uses concrete's inherent water permeability to deliver crystalline chemicals that plug the material's pores and bridge microcracks that occur as the concrete dries and shrinks, making it resistant to chemical attack, such as sulfuric acid. The sealant can be used on new concrete or applied as a surface coating to existing concrete. It is nontoxic, contains no VOCs and is NSF-61 approved for potable water by NSF International. 604/273-5265; www.xypex.com.

Anua Introduces Platinum Wastewater Treatment System



The Platinum residential wastewater treatment system from Anua measures approximately 5 feet by 7 feet by 5 feet and comes fully assembled for immediate belowground installation. Features include minimal power consumption, reduced maintenance, lower cost and environmentally sensitive installation in residential, small neighborhood and commercial applications such as apartments, restaurants and hotels, RV and mobile home parks, schools or nursing homes. The odorless system is virtually silent. The only moving part is a small air delivery system. It also has a single- or two-stage primary settlement tank. The three-step treatment system has a submerged aerated filter that reduces the level of biological oxygen demand (BOD) and total suspended solids (TSS) in the effluent to less than 25:30 mg/l BOD:TSS. Coupled with a peat fiber biofilter, the treatment will achieve a 5:5 mg/l BOD:TSS and significant pathogen reduction. 336/547-9338; www.anua-us.com.

Clarus Offers Drop-In Fusion Series Treatment System

The Fusion Series wastewater treatment system from Clarus Environmental uses anaerobic and aerobic zones to produce secondary quality effluent. The "drop-in" system features a polypropylene media filter that never needs replacing. Other features include constant recirculation of treated wastewater and a twice-daily automatic backwash cycle that returns residual sludge to the head of the system. A programmable compressor delivers oxygen to aerobic zones. NSF Standard 40 Class I system models (ZF-450, ZF-600, ZF-800) are approved for Georgia, Texas and other areas. Larger units, capable of treating 1,120, 1,440, 1,680, 2,000 and 2,800 gpd are available for clustered and commercial applications. 877/244-9340; www.clarusenvironmental.com. ■

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Facility Solves Regulatory Challenge

The newsletter of the Iowa Onsite Waste Water Association chronicled the growth of Accurate Dewatering Services, the state's only privately owned septage dewatering facility.

When Polk County authorities banned land application, Jody Forest was spreading a million gallons of septage a year through his company, Forest Septic Tank Service in Des Moines. Forest and friend Jerry Heckman attended the 2007 National Association of Wastewater Transporters Waste Treatment Symposium, then built the facility with a design capacity of 40,000 gpd.

Entering its third year, the plant receives 5,000 to 25,000 gallons of septage a day. In 2010, it dewatered nearly 2 million gallons. The partners maintain a fair and level competitive marketplace and watch the bottom line. Heckman invites those interested in building a similar facility to visit or call him at 515/447-7374 or 515/265-4039.

The association has 28 more members holding the basic designation for Certified Installer of Onsite Wastewater Treatment Systems. Joey Maher of Professional Waste Water Services in Farragut earned the advanced designation. The state has 230 professionals holding current basic and advanced certifications, of which 176 are IOWWA members.

Grassroots Effort Garners Success

The legislative committee of the Michigan Septic Tank Association sent information packets to members to help them contact legislators to support two bills. The first would reprieve spring weight restrictions in emergency hauling situations. The County Road Association of Michigan and the Department of Transportation oppose it.

The second bill, HB 4578, would require local governments that ban land application or require septage to be taken to wastewater treatment plants to build a receiving station capable of accepting all septage.

"The MSTA grassroots effort seems to be paying off," says Judy Augenstein, legislative consultant. "We mustered 22 co-sponsors for HB 4578 and word is getting around that author Ken Goike is on a mission." Voters in the 33rd District chose Goike, a former MSTA director and president and owner of Goike Trucking in Ray, as their state representative in 2010.

CALENDAR OF EVENTS

Oct. 11-12

Delaware On-Site Wastewater Recycling Association Technical Conference and Exhibition, Dover Downs Hotel and Casino, Dover. Call Ben Miller at 302/383-5391 or visit www.dowra.org.

TRAINING & EDUCATION

Alabama

Licensing classes are the joint effort of the Alabama Onsite Wastewater Association (AOWA) and University of West Alabama (UWA). Courses are at UWA Livingston campus unless stated otherwise:

- Oct. 6-7 – Pumpers
- Oct. 12-14 – Advanced Installer I
- Oct. 27-28 – Continuing Education, Mobile
- Nov. 16-18 – Advanced Installer II
- Dec. 1-2 – Continuing Education

The first day of Continuing Education classes is for installers and the second day is for pumpers and portable restroom operators. Call the training center at 205/652-3803 or visit www.aowatc.uwa.edu.

Arizona

The Arizona Onsite Wastewater Recycling Association in sponsorship with the University of Arizona Onsite Wastewater Education Program is offering the NAWT Inspector Training and Certification course Oct. 11-12 in Maricopa County. Call Kitt Farrell-Poe at 520/621-7221 or email kittfp@ag.arizona.edu.

California

The California Onsite Wastewater Association is offering these NAWT classes:

- Oct. 6-7 – Septage Treatment Workshop, Sutter Creek
- Oct. 7 – NAWT Vacuum Truck Technician, Sutter Creek
- Nov. 1-2 – NAWT Operation and Maintenance, Part 2, Mill Valley
- Dec. 9 – NAWT Installer Training, Citrus Heights

Call Kit Rosefield at 530/513-6658 or visit www.cowa.org.

Georgia

The University of Georgia College of Agriculture & Environmental Sciences is offering a Contractors and Pumpers course:

- Oct. 12 – Albany
- Oct. 18 – Dublin
- Oct. 25 – Valdosta
- Nov. 8 – Fulton
- Nov. 15 – Brunswick

Contact Vaughn Berkheiser, Ph.D., at 770/233-5506 or vberk@uga.edu.

Iowa

The Iowa Onsite Wastewater Association is offering the Basic and Advanced Certified Installer of Onsite Wastewater Treatment Systems Installation Overview and Test Nov. 11-12 in Prairie City. Call Alice Vinsand at 515/225-1051 or email execdir@iowwa.com.

Minnesota

The University of Minnesota Water Resources Center has these classes:

- Oct. 18-21 – Advanced Design and Inspection, Part 2, St. Cloud
- Nov. 30-Dec. 1 – General Continuing Education, St. Cloud

Call Nick Haig at 800/322-8642 or visit www.septic.umn.edu.

Missouri

The Missouri Smallflows Organization is offering these CEU courses:

- Oct. 11 – Profitable Business, Camdenton
- Oct. 12 – Troubleshooting, Camdenton
- Oct. 25-26 – High-Strength Waste, Liberty
- Nov. 9 – Pumps, Panels, Electrical, Cape Girardeau
- Nov. 10 – Earthen Structures, Cape Girardeau
- Nov. 15 – Selling Systems, Branson
- Nov. 16 – Aerated Treatment Units, Branson

Call Tammy Yelden at 417/739-4100 or visit www.mosmallflows.org.

New England

The New England Onsite Wastewater Training Center at the University of Rhode Island in Kingston has these courses:

- Oct. 6 – Bottomless Sand Filter Design and Installation
- Oct. 13 – Functional Inspections
- Nov. 3 – Rhode Island Designer Examination Prep
- Nov. 9 – AutoCALCS: Automated Support Materials for Pump Timers, Tanks, Chambers, BSF Sizing & Buoyancy Calculations
- Nov. 17 – Identifying and Managing High-Strength Wastewater

Call 401/874-5950 or visit www.uri.edu/ce/wq.

North Carolina

North Carolina State University has these courses:

- Oct. 25 – Soil Profiling for Wastewater and/or Stormwater Handling, Wilmington
- Oct. 27 – Installation of Advanced Systems, Wilmington
- Nov. 14 – Basic Troubleshooting of Onsite System Malfunctions, Mills River

- Nov. 15 – Pump System Field Course: Advanced Monitoring and Troubleshooting, Mills River
- Nov. 30 – Advanced Troubleshooting of Onsite System Malfunctions, Raleigh

Call Joni Tanner at 919/513-1678 or visit www.soil.ncsu.edu/training.

The North Carolina Septic Tank Association has these classes:

- Oct. 20-21 – Installer/Inspector, Hickory
- Oct. 26-28 – Installer, Inspector, Pumper, Land Application, Greensboro

Visit www.ncsta.net or email ncsta@earthlink.net.

Oregon

The Chemeketa Community College in Salem has these CEU classes:

- Oct. 13 – Installer
- Oct. 19-20 – Maintenance Operator

Call 503/399-5181 or visit www.chemeketa.edu/busprofession/ccbi/customizedtraining/deq/classes.htm.

Pennsylvania

The Pennsylvania Septage Management Association is offering the Confined Space/Competent Person course Oct. 5-6 in Stroudsburg. Call 717/763-7762 or visit www.psma.net.

Utah

Utah State University has these On-Site Wastewater Treatment Training Certification Workshops:

- Oct. 11-13 – Level 3, Logan
- Oct. 19 – Renewal Level 3 Certification, Logan

Call 435/797-1000 or visit http://uwrl.usu.edu/partnerships/training/classes.html.

Virginia

The Virginia Center for Onsite Wastewater Training has the System Design Camp I class Oct. 3-7 at Pickett Park. Contact Lydia Shepherd at 434/292-3101 or email lydia.shepherd@southside.edu. ■

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TERRALIFT: A little over 10 years old, 200 hours, excellent condition, 5 boxes of beads, tandem metal trailer specially built. $9,000. 989-975-9470 MI. (P10)

TERRALIFT 2000: 2002 model year, 228 hours, excellent condition. $14,900. 574-256-1465 or 574-532-3559 IN. (P09)

TERRALIFT FOR SALE: 1995 LT 11 model, recently rebuilt and painted. Very well maintained and runs great. $10,500. Contact Brian 218-428-0391 MN. (PBM)

1999 Terralift. It's in good condition and it runs great. Included is a 2 axle enclosed trailer and three 75 gal. boxes of beads. Possible trade towards tanker trailer or pump truck. $11,000. Ken 209-678-5536 CA. (P09)

2001 Terralift. Low usage. Well maintained and garage kept. Excellent condition. Asking $15,000. Call 804-492-4826 VA. (P09)

HAND TOOLS

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2006 Eager Beaver 20-ton trailer. Used very little. Excellent condition. Asking $11,500. Can email or text pic. Call 804-492-4826 VA. (I09)

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1985 Mack dump truck (new aluminum body installed 2007), 300 Mack engine, 10-speed trans. Well maintained. Excellent condition. Low usage. Can email or text pic. Asking $25,000. Call 804-492-4826 VA. (I09)

1993 Chev Kodiak with DelZotto 7-Ton Septic Tank Boom: Hydraulic outriggers, 3116 Cat, 9-spd. trans., 33,000 GVWR, air brakes, 20-ton pintle hitch w/ air connections, 147,0000 miles. Good condition. $14,500
920-362-2437 WI P09

1991 Peterbilt 379 sleeper tractor. 13-spd. trans., 425 Cat, NVE vac pump, water-cooled. $22,500. www.pumpertrucksales.com. Call Mike @ 303-478-4796 or JR. @ 720-253-8014, CO. (P09)

1984 Autocar Conventional tractor, 511,000 miles, 3406 DI 400 Cat, 13 speed transmission, tag axle. $20,000. Call JD at 775-825-1595, email jd@watersvacuum.com. (P09)

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