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The official publication of the National Onsite
Wastewater Recycling Association

THE Onsite Journal

Spring 2015

Sharing Data, Saving Effort

The country is keeping an eye on the
Environmental Protection Agency's
project in the Chesapeake Bay region.
Read more on page 7.

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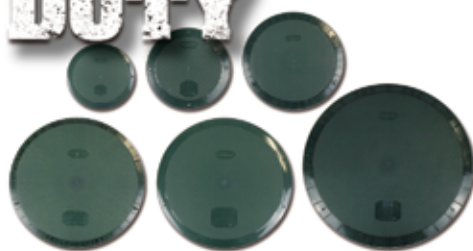
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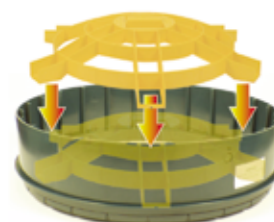
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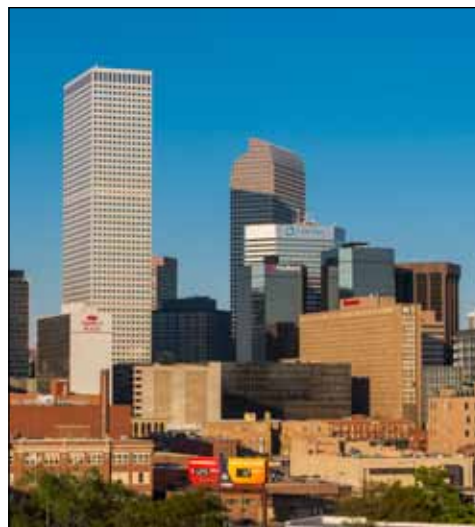
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Sharing Data, Saving Effort

The Environmental Protection Agency is working with the Chesapeake Bay states on a data sharing initiative that the rest of the country is keeping a close eye on.



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NOWRA Conference an Unprecedented Success

The annual conference, held November 9 to 12, 2014, was an enormous success.

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A number of organizations are starting to see the benefits of onsite wastewater recycling systems.

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Looking Forward

WELCOME to the spring 2015 edition of *The Onsite Journal*! This is my first opportunity to deliver a president's message. I would simply like to begin by thanking you all for your continued support of the National Onsite Wastewater Recycling Association (NOWRA). I am honored and humbled to follow the many past presidents who have so capably led this organization. I will do my best to promote the interests of NOWRA and keep us moving in the right direction.

There are a lot of great things happening in our organization! In November 2014, we had a very successful annual conference in Denver, Colo. The co-operation between NOWRA and the Colorado Professionals in Onsite Wastewater was fantastic, and it made for an informative and enjoyable event for all.

The event worked so well that it is now the template for future conferences and will be expanded upon for 2015. When NOWRA holds its annual conference in Virginia Beach November 3 to 6, 2015, we will be fortunate to partner with the Virginia Onsite Wastewater Association, the State Onsite Regulators Alliance and the National Association of Wastewater Technicians.

This joins the three largest and most influential groups in the onsite industry together with a strong state affiliate

that is very successful. Unity and cooperation will be very important for our industry as we move into the future.

This is why NOWRA has begun a significant lobbying effort in Washington, DC. We held a Technology Expo on Capitol Hill on July 30, 2014 that was well attended and began the long term effort to establish credibility for us at the federal level. We hope to conduct another expo in 2015 to continue this effort.

Another part of this is cultivating the relationship that NOWRA has with the United States Environmental Protection Agency (EPA) Office of Decentralized Wastewater. The EPA recognizes NOWRA as the representative of the onsite/decentralized industry and they continue to request input on significant initiatives, such as the Chesapeake Bay Watershed Workgroup and the Decentralized Memorandum of Understanding Partnership. We will continue to cultivate this relationship in the future.

Thank you for your continued support of NOWRA. Without our members, business benefit partners and state affiliates, the group would not exist. We look forward to working with you to protect our valuable water resources. 🌍

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Sharing Data, Saving Effort

By Meg Crane

THE US Environmental Protection Agency (EPA) is helping the six states in the Chesapeake Bay Watershed region make the approval of onsite wastewater treatment systems more efficient. This came after a report titled *A Model Program for Onsite Management in the Chesapeake Bay Watershed* was released in June 2013.

The report suggested that the states in the watershed come together and share their data to make approving advanced treatment systems more streamlined.

When a manufacturer wants a system approved, it has to go to each individual state. Maryland, New York, Pennsylvania, Virginia and West Virginia each collect their own data, as does Delaware, although it is also looking at data from other states. The manufacturer is essentially starting over each time.

Part of the reason each state collects their own data is because each state believed that its approval process was very different and that conditions are unique, says Maureen Pepper (Tooke) of the EPA Office of Wastewater Management. However, this turned out to not be so true. While there were some differences, states were able to come together and find the middle ground.

The goal is to have one state collect data from a system's performance that is done in a way that the other states have agreed is acceptable. They have agreed on what data to collect, when, where and how to collect it. "It's just a way for states to reduce the time and effort on burdened resources," says Pepper.

But just because a system is accepted in one state, does not automatically mean it gains approval in the other five. "Each state is still doing their own approval," says Pepper. Each is also upholding their own rules and regulations. They are simply saving one another a bit of time, money and effort.

According to Pepper, this is the first project of its kind to be successfully undertaken in the onsite wastewater industry in the United States. But she does not think it will be the last. Pepper says that other areas of the country are keeping an eye on the project and could certainly benefit from such a process.

Dwayne Roadcap, the division director at the Virginia Department of Health, thinks the initiative should not be limited to the Chesapeake Bay area. "It's certainly a model that could be used in other places," says Roadcap.

He is not directly involved in creating the initiative, but is working closely with an employee who is. He says he is excited for it to go into play and appreciative of all the work being put into it. "It gives me a great deal of confidence that we've got a nice process in play that will hopefully create some efficiency," says Roadcap.

He foresees it reducing conflict at the state level. Roadcap says it will give everyone data that they can be confident in, which improves the process for everyone.

Jim Bell, executive vice-president of Bio-Microbics, thinks the concept of the initiative is good. "Industry is entirely in support of the concept," says Bell, who also sits on the board for the National Onsite Wastewater Recycling Association (NOWRA).

Industry members, the EPA and the Chesapeake Bay states need to come together to form a plan that is suitable for everyone. "We're at the stage now where NOWRA is commenting back to EPA from the draft of the data sharing plan. So far, the association is in full support of the project," says Bell. 🌱



The Chesapeake Bay Watershed.



The Virginia Department of Health looking at an advanced wastewater recycling unit.



NOWRA Conference an Unprecedented

By Meg Crane



THE National Onsite Wastewater Recycling Association's (NOWRA) annual conference, held November 9 to 12, went better than anyone could have hoped for. This year, the conference was a little different than usual, as the association partnered with the Colorado Professionals in Onsite Wastewater (CPOW).

After the event, NOWRA sent out a survey to participants, to find out what worked and what did not, to plan for a better

conference next year. "The biggest issue was that we ran out of coffee a few times," laughs NOWRA executive director Eric Casey.

The organizers were equally satisfied with the event. Casey says, "The partnership [with CPOW] was very smooth; quite successful from the perspective of two organizations working well together."

Jennifer Migliorato, the outgoing president of CPOW, says the partnership went better than they had expected. "We were able to bring more education and a different type of education

than we would have been able to without them."

For Casey, the only hitch was that one keynote speaker was unable to attend at the last minute, but Casey was able to step in and give the speech himself. The speaker was also scheduled to run a lobbying workshop. Several NOWRA members with political backgrounds offered to share their expertise instead. The fact that they were not prepared to run the workshop did not show. Casey says it was the highlight of the conference.

"The information that was provided by the presenters was extremely strong and very useful," he says. The workshop also attracted many of the attendees.

Another highlight for Casey was the field trip, which was planned by Roger Shafer. Shafer put a lot of work into planning the field trip to five different sites. Despite the zero degree weather, only three people backed out of the event. With nearly 70 people signed up and ready to go, the association had to organize for two buses to safely transport everyone.

"It was pretty rushed on-site because it was so cold," says Shafer. Even so, he only received positive feedback from attendees. "I don't think I'd change anything," says Shafer. "It was a good choice of sites; everyone got something out of it."

It was not just the field trips that drew in more people than expected. The conference, in general, had high attendance levels. Nearly 100 people from the state showed up for the conference. The overall attendance was around 250 people, a significant increase from the 140 delegates last year.

• "The biggest issue
• was that we ran out of
• coffee a few times."



Success

"I give NOWRA a lot of credit for putting on a pretty good show," says Shafer.

Tom Fritts, past-president of NOWRA, agrees that attendance this year was outstanding. In past years, the exhibit hall has been quite quiet, but this year, the lanes were packed with attendees. "It was difficult to get through some of the lanes in the exhibit halls," Fritts says.

His favorite part of the conference was the *Legends of Design* break-out session. And he does not think he was the only person who enjoyed it. "The room was full, and you could hear a pin drop," says Fritts. During this session, panelists Jerry Tyler, Bob Rubin, Robert Siegrist and Bob Mayer

shared their perspectives on designing decentralized wastewater treatment systems.

Fritts was able to enjoy the conference because of how well everything was set-up and because there were no hiccups distracting him. Buses took participants to and from the ice-breaker events, making them easy for participants to take part in. "You're always concerned about all those little things that can pop up and create headaches. There was not one thing; the hotel was great, the food was outstanding," says Fritts.

With such a successful event under its belt, NOWRA is already planning its next conference. The 2015 event will be held November 3 to 6 at the Virginia Beach Convention Center. The association is partnering with the Virginia Onsite Wastewater and Recycling Association, the State Onsite Regulators Alliance and the National Association of Wastewater Technicians.

The joint event has been dubbed the Onsite Mega-Conference and Fritts expects this could double the attendance from this year. And he promises that they will have more than double the coffee for attendees next year! ●



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Setting the Stage for the FUTURE

By Danelle Cloutier



The Living Machine uses plants to treat all of the building's wastewater in the lobby and surrounding sidewalk. All photos in this layout provided by the San Francisco Public Utilities Commission.



The Living Machine at San Francisco Public Utilities Commission headquarters.

The treated water is used for flushing toilets.



TWO new reports aim to change the way people think about urban decentralized/distributed onsite water systems.

The San Francisco Public Utilities Commission, the Water Environment Research Foundation and the Water Research Foundation's *Blueprint for Onsite Water Systems: A Step-by-Step Guide for Developing a Local Program to Manage Onsite Water Systems* features 10 steps to developing a local program to manage onsite water systems.

The Johnson Foundation at Wingspread's *Optimizing the Structure and Scale of Urban Water Infrastructure: Integrating Distributed Systems* sets a strategic mission to tackle issues through distributed systems. The report is part of Charting New Waters, an alliance of leading organizations calling for action to change the threatening United States freshwater crisis.

Both reports encourage much needed discussion about how onsite water systems can impact critical environmental issues. Together, they set a strategic mission for the future of the industry and our world.

In March 2014, The Johnson Foundation at Wingspread held a meeting with industry professionals to discuss optimizing the structure and scale of urban water services and management systems. The knowledge shared at the meeting informed *Optimizing the Structure and Scale of Urban Water Infrastructure*.

"One of the goals that we had in mind was to bring distributed infrastructure out of the closet and into mainstream conversation within the sector," says Lynn Broadus, former director of The Johnson Foundation's environment program and president of Broadview Collaborative, Inc. She says that part of the goal was to start a conversation about the subject, which the document has done successfully.

The report touches on topics including water security, successful distributed systems and the benefits of distributed systems. Broadus says some of the key concepts of this report are resiliency to extreme weather events and climate change, and financial resiliency.

For example, she mentions how when Hurricane Sandy devastated the United States in 2012, some centralized plants were flooded and offline for months while the distributed systems were not out of commission for long. Distributed systems survived partly because they were not at the mouth of rivers, but also because they were located at multiple locations.

"When you lose one, you have the other 79 or whatever. That's one way that distributed infrastructure can help," says Broadus.

One of the reasons why distributed systems may not yet be at the top of the priority list for decision-makers is because of misconceptions about onsite water treatment systems. This report helps counter common misconceptions.

"One of the hesitations about wastewater treatment is that it drives sprawl because people can build anywhere and I'm hoping this report gets us up and out of that conversation," she says. "It shows that these technologies do and can have a role even in dense urban infrastructure."

Broadus also hopes the report shows that distributed systems and centralized systems can exist together. "It's not either/or. It can be integrated into it."

At the meeting in March, the participants suggested using the term "distributed" instead of "decentralized," which the report says focuses on what the systems are not. The report says the term "distributed" better describes the benefits and advantages such systems have to offer.

The report is targeted at planners and civic leaders who are looking to bring flexibility and sustainability into their communities. "I hope they start asking questions like, 'where and how does this make sense in my community and work?'" The report ends by urging decision-makers and the public to think differently about using unconventional and innovative infrastructure systems to address urban water management problems. "I feel fairly confident that it will help drive the conversation and disseminate the concepts," she says.

Conversations about advancing the industry work better with a large network of industry professionals, which is where the San Francisco Public Utilities Commission (SFPUC) comes in. "We work better together than alone—that's the intent of our network," says Paula Kehoe, director of water resources.

The SFPUC is creating a network of communities and agencies that are interested in developing an onsite water treatment program. "We want to be able to share information and share our lessons learned with each other. That's the value of working together."

The SFPUC is a good connection to have for anyone in the onsite water industry. Over two years, San Francisco developed an onsite water treatment program. The city's program allows for the collection and treatment of alternate water sources for use for non-potable applications within an individual building or a district. The SFPUC took that experience and developed a 10-step report to help others easily develop their own program.

"The need for the blueprint is there's a role for public agencies for onsite water systems in their community to protect public health," says Kehoe. "In most communities, there aren't any formally established programs that require any oversight and monitoring of these systems to protect public health."

Similar to The Johnson Foundation at Wingspread, the *Blueprint for Onsite Water Systems* came about from discussion at a meeting. In May 2014, SFPUC partnered with local, state and federal public agencies across North America to discuss onsite water systems. The conversation at Innovation in Urban Water Systems touched on the barriers, opportunities and research needs for onsite water systems for non-potable applications. "When we held the meeting, we all recognized that there was a need to establish oversight programs on all levels," says Kehoe.

The dialogue had two major outcomes. "We all concurred that we folks need to develop programs on the local level and that led to the development of the blueprint that would assist those who attended the meeting and those who didn't," says Kehoe about the first outcome. "The second major outcome was really to establish a water quality standard that we could hopefully collectively agree with and bring to a national level so there's consistency on a national level."

So far, the report has proven to be successful. "I can say that I received a call from the state of Hawaii, one of the participants in the meeting, and they hadn't adopted the most recent plumbing code. As an outcome of the meeting, they have developed the newer plumbing code and they're now developing an onsite water program," she says. "They said that coming to the meeting really allowed them to move forward."

Together, the two reports have the power to inform and assist anyone who is in or outside of the industry, and spark discussion about the future of our world. "We're hoping this will amplify the conversation," says Broadus.



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Washington Legislative Update

By Thomas Cassidy

THE election was great for the decentralized industry. My prediction is that the new Congress will not give big pipe all that they have gotten accustomed to. In our efforts this past year, we have learned of the disillusionment of the general public and politicians to big water and Environmental Protection Agency (EPA) consent decrees.

With even more Republican house members in the new Congress, we will be dealing with more receptive audiences. Our upcoming goal is to keep extending our network in Washington, on Capitol

Hill, and with federal agencies and collaborating partners.

After all the consent decrees, political leaders are realizing it will be nearly impossible to do what was initially agreed to do with the EPA. In discussions with big water interests, we have heard that decentralized has to be part of the solution. The National Onsite Wastewater Recycling Association (NOWRA) is in as good a position as we have been in a number of years. Under new EPA guidelines, we will be able to pursue funding for new septic systems, which is a big change.

We will have most of the same House leaders to deal with in the new Congress. On the Senate side, with the Republicans running the Chamber, we will most likely have a very receptive ear to our industry and our issues. One of our strongest backers has been Rep. Bob Gibbs from Ohio. He will still be chairing an important subcommittee for us. We will be educating all the new members and explaining the decentralized position.

• Our goal this past year
• was to be *impactful* and
• we accomplished that.

Our goal this past year was to be *impactful* and we accomplished that. We were part of the conversations that took place in Congress and the EPA. Out of the EPA, we have a new directive for septic financing. We will continue to engage the policy makers from all fronts.

In the Water Infrastructure Finance and Innovation Act (WIFIA) legislation, we got our industry covered and we will be working with House and Senate leaders as well as the EPA to make sure we are part of what was envisioned.

We will build on the great work of NOWRA's board in setting out our aggressive agenda for Congress. The most successful industries or enterprises over time all have had great legislative networks in each and every state and in every district. Realtors, home builders and the American Association of Retired Persons (AARP), to name a few, all have a vast network they use effectively.

Lobbying is much more effective when it is connected to people on the ground and to voters. We are more like David than Goliath, but I see that as our saving grace. We are smaller and have a great ability to react quicker and respond with great cost effective solutions. Our message, as we collaborate and connect the dots, is to highlight our strength of being in each and every state providing jobs and making the environment cleaner and greener. 🌱



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Hilary Valentine: Educating Within the Industry

HILARY Valentine is so dedicated to spreading knowledge about onsite wastewater recycling systems that she even teaches her four- and five-year-old children about them.

In 1997, Valentine graduated from Wesley College with a bachelor of environmental science. Unable to find a job in the industry, she decided to pursue a master's in education. Ready to follow the career path of a teacher, Valentine got a phone call asking her to come in for a job interview at DNREC-Ground Water Discharges Section.

Her carefree, "I do not need this job, I am going back to school," attitude landed her a job as an environmental control technician. It was not long before she advanced to the role as environmental engineer. This is where she gained a great deal of experience in engineering and learned about regulations in the industry. She also returned to school and received her associate of civil engineering degree in 2004 and master's in environmental science in 2008.

"I find wastewater treatment to be fascinating," says Valentine. She says every site and system is different and needs a different solution. There is always something new to learn, especially with evolving technology.

Valentine does not like to witness these changes in technology from a lab. This and her passion for teaching make her current role as the department chair for the Environmental Training Center at Delaware Technical Community College, the perfect job for her. "We train water quality professionals," says Valentine. This includes those who are new to the industry and established professionals who need continued education.

She creates classes, manages teachers, manages grants and funding, and focuses on finding money for training equipment so that students get hands-on learning. She also somehow finds time to be the technical consultant for her husband's business.

And she has recently been getting even more involved in the industry. When her children were born, she just completed her role as past-president of the Delaware Onsite Wastewater Recycling Association

Valentine teaching an innovative and alternative system operation and maintenance class at Delaware Technical Community College.



Valentine teaching a designing drip dispersal systems course at Delaware Technical Community College.

(DOWRA) to focus on her family. A couple years ago the National Onsite Wastewater Recycling Association (NOWRA) approached her about joining the association as an academic and about helping to create a design course for Maryland. Valentine decided it was time to get back into helping associations promote the industry.



The design course took a year to create between Valentine and three other members of NOWRA. "So many times you find individuals thinking that they have to recreate the wheel when it comes to designing onsite systems," says Valentine. This course provides participants with basic design principles that can be applied when completing most onsite designs.

With an excellent education, a passion for the industry and a job that allows her to teach and get more hands-on experience in the field, Valentine is sure to have a big impact on the industry. In fact, she was already recognized in 2008 by Delaware Technical Community College with On-Site Professional of the Year Award. 🌍

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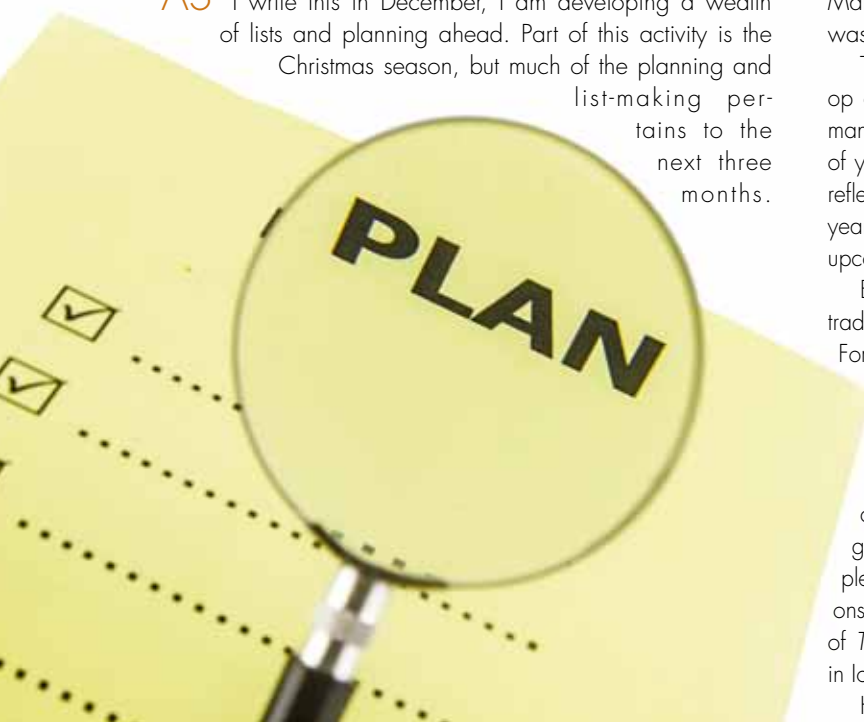
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A Look at Our Changing Industry

By Randy Miles

AS I write this in December, I am developing a wealth of lists and planning ahead. Part of this activity is the Christmas season, but much of the planning and list-making pertains to the next three months.



Many of us are busy with a number of state and national onsite wastewater meetings and trade shows slated for early 2015.

These venues encompass a large amount of planning to develop educational shows, exhibits, business meetings and review of many of the local and state codes. To me, this is an exciting time of year and a necessary component of our industry. It is a time to reflect on what has transpired in the industry and business this past year, and a time to look ahead, regroup, plan and vision for the upcoming year of business and professional activities.

Education is the cornerstone for many of these meetings and trade shows. Education can come in the form of many settings. Formal talks and workshops provide many opportunities to consider new technologies, installation methods, inspection points, legal issues and fundamental concepts of many aspects of our industry.

Many states require continuing education units (CEUs) for continued licensing or certification. Many professionals have groaned about this requirement. However, I do not hear that plea as often as I did in the past. In an article on inspection of onsite wastewater systems (OSWS) at time of sale in the last issue of *The Onsite Journal*, Dan Olson, senior environmental specialist in Iowa, shared the importance of CEUs for licensed professionals.

He noted the re-emphasis of specific inspection points of the OSWS as well as the introduction to inspection points on new technological components or propriety components which have been introduced since the professional has been certified.

As we go into the meeting and trade show season, I hope we can all reflect on the journey of where our industry has been and where we can go. Our professional state onsite wastewater organizations, NOWRA and many of their leaders have been key in raising the flag for the industry. In my 30-plus years of involvement in the industry, I have observed a number of positive changes in technology, mind-set and professionalism.

As a soil scientist, researcher, educator and consultant, I have had the opportunity to interact with almost all of the professional disciplines that make up our industry. During this time, I have had the privilege to attend, participate, speak, train and interact at many state, regional and national onsite wastewater meetings and trade shows.

All of the activities and forums I have witnessed in these gatherings have led to greater education of many members, thus providing a better product and service for our customers and the communities in which we live. One personal note, in recent years, I have noted the increase in younger individuals in our industry. This new generation has provided diverse viewpoints to the industry and greater enthusiasm.

It was not too many years ago, a new OSWS administrator was asked what he thought about working in the onsite wastewater profession in Missouri. His quick, brash answer was, "It makes me qualified to work in undeveloped counties." Since then, thanks to the hard work of our state professional organization and leaders, I can firmly state that we are not an undeveloped country. 🌍

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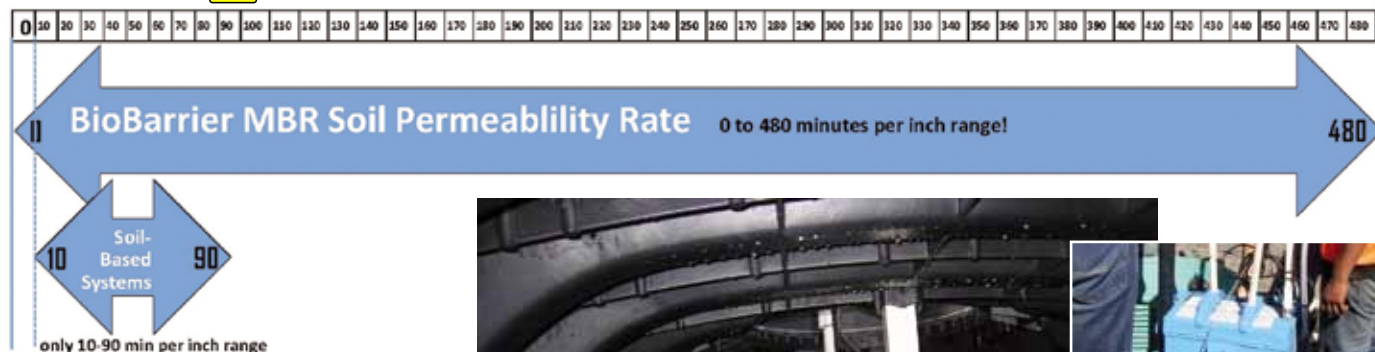
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How Can the Dispersal Area Be Smaller?

By Jennifer Cisneros



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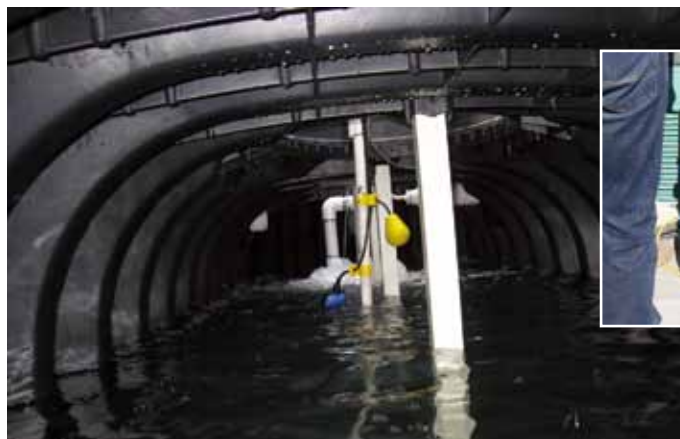
THERE are several reasons property owners may want to reduce the size of the dispersal area. Whether it is the cost of land or adding amenities, the typical size of a drain field takes up a lot of room the property owner sees as open space. This land can be reclaimed using an active process control and treatment with dispersal of clean water through the soil, instead of a soil-based treatment/disposal system.

How does soil-based treatment differ with advanced technologies?

In the case of a typical septic system, the strength of the wastewater can vary tremendously depending on factors such as usage, garbage disposals and dishwashers. It is, in actuality, a pretty loose estimate.

This can be mitigated by using an aerobic treatment unit (ATU), instead of a septic tank; as long as the ATU is sized properly, working, serviced (including sludge management and pumping), and is not killed off by the use of strong cleaners with a large concentration of quaternary ammonia compounds.

The design of the system then must allow the biochemical oxygen demand (BOD5) to be spread out evenly. The demand for oxygen is less than the passive delivery of oxygen in the soil. Otherwise, the soil will clog with anaerobic slime. And finally, after an unknown amount of treatment, the water has a low enough BOD5 to pass through the pores in the soil without clogging by aerobic sludge or anaerobic slime determined by the soil's permeability.



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You can get a fairly accurate estimate of permeability, but that has very little weight. In the Illinois Private Sewage Code, the permeability is not even weighted linearly. Illinois has Category 1 through 12 types.

On the most permeable end, Category 2, the actual rate at which the water flows through the soil (Ksat) is 1/170th of the mandated loading rate measured in gallons per square foot per day. At the other extreme, Category 12, in tight clay soils, the state loading rate is 38 times the soil permeability of water (Ksat).

With the soil permeability requirements, typically the soil-based treatment systems can only use the ranges of 10 to 90 minutes per inch permeability. With an ultrafiltration membrane and NSF 350 certified system, the resulting effluent is water and, therefore, has permeability rate with a much wider range.

So, there are three unknown variables (strength, BOD5 and permeability rate) and one constant (soil evaluation) when sizing a system. Using aerobic treatment units, pressure dosed fields and drip irrigation can move those first three variables from unknowns to manageable ranges.

Why NSF/ANSI Standard 350 be considered?

The NSF Standard 350 has a pass/fail criteria of 10 milligrams per liter of carbonaceous

biochemical oxygen demand (CBOD5) and total suspended solids (TSS). Turbidity of less than five Nephelometric Turbidity Units (NTU) and E. Coli of less than 14 most probable number per 100 milliliters.

NSF 350 is a water (health) standard, not a wastewater treatment standard. For example, the system currently certified to that standard had test results that were non-detectable CBOD5 and TSS. Turbidity of 0.25 NTU and E. Coli of 1.3 most probably number per 100 milliliters. There are a few molecules of pollution and a few parts per million of nutrients, but basically water down to the error rate of laboratory tests. Also, it is free of bacteria, parasites, and most viruses.

In 2014, the California Plumbing Code and IgCC Plumbing Code both reference NSF 350 for water reuse. The 2015 ICC and UPC are expected to reference NSF 350 for water reuse as well. Based on these changes in the plumbing code, NSF certified products should be considered for all water reuse applications.

A computer control system can be designed to produce either safe, clean water or no water. This gives a precise quantity, quality and rate of delivery. So the first three variables of the equation are now known constants.

►► page18

If you are a NOWRA state affiliate, you can contribute to this section of the magazine **FREE OF CHARGE!**
Email mcrane@matrixgroupinc.net for deadlines for the next issue.

Colorado

The National Onsite Wastewater Recycling Association and Colorado Professionals in Onsite Wastewater (CPOW) joined forces to host an annual conference in Denver, Colo. November 9 to 12. The annual CPOW conference is one of the primary events where CPOW members have the opportunity to get together face-to-face; it was great to share this time with industry leaders from across the nation!

Approximately 70 conference attendees braved the snowy weather and participated in the field trip on the last day of the conference. The participants were able to see firsthand some of the onsite and decentralized wastewater treatment technologies currently being used in Colorado. The CPOW board received positive feedback from conference attendees and is now actively planning an upcoming one-day conference event to be held in March 2015.

www.cpow.net

Missouri

Missouri Smallflows Organization (MSO) held its Annual Conference & Trade Show in January at the Country Club Hotel & Spa in Lake Ozark. Kicking off the year with a good start, MSO will be hosting continuing educational seminars around the state for wastewater professionals. Check out the MSO website for the complete 2015 schedule.

Company memberships are now offered by MSO to help businesses involve more of their employees as a part of our state-wide organization. Our membership form can be found on our website for individuals and companies.

The Daryl Brock Memorial Scholarship application deadline is February 15. Any son or daughter of a current member of MSO who is a senior in high school may apply. Call the MSO office at 417-631-4027 for details.

The MSO Board of Directors wants to thank all of our sponsors and members for

attending our conference in January. You helped make it a huge success.

www.mosmallflows.org

Pennsylvania

The Pennsylvania Onsite Wastewater Recycling Association (POWRA) held its annual fall meeting and education session at the Stroud Water Research Center on November 14, 2014. Attendees toured the LEED platinum certified complex and learned about the facility's innovative drip irrigation system using wetland treatment. Sewage Enforcement Officers received two continuing education credits, which helps fulfill their DEP required 15 bi-annual credits needed for continuing certification.

A spring field trip is being planned in June in Bucks County. Several sites will be visited displaying technologies such as micromounds, peat filters and soil air.

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Join NOWRA: Reap the Benefits

WHY NOWRA?

- NOWRA is the largest organization within the U.S. **dedicated to educating and representing members** within the onsite and decentralized industry.
- **All segments of the industry are represented on NOWRA's Board of Directors** that provide broad perspectives to promote and sustain our industry and service to the public.
- NOWRA provides **a national forum** to address the challenges facing our industry.
- As the national educational resource and clearinghouse for onsite and decentralized systems and promoter of best management practices, **NOWRA plays a lead role in state and federal legislative initiatives** to protect water sources, human health, and the environment.
- **NOWRA creates new market and business opportunities for its members** through conferences and networking events, while increasing the awareness about how onsite systems protect public health and the environment.

WHY JOIN?

Septic Locator: Every NOWRA member receives a free listing on the Septic Locator, the only national, searchable directory of providers of onsite wastewater management services.

Installer Academy: NOWRA has established the Installer Academy as the national educational entity for the decentralized wastewater industry to ensure that quality training programs are available for all industry practitioners.

Resource Library: NOWRA's Resource Library is intended to be a one-stop portal to help you identify critical information online, which can help you manage your business. It consists of published industry research, how-to manuals, regulations, archived training materials...and more.

Annual Conference: NOWRA's Annual Conference & Expo brings together industry leaders from around the country.

Newsletter: NOWRA E-News is delivered directly to your email inbox and consists of the latest news on national and regional developments affecting our industry.

Leadership: NOWRA provides all members with opportunities to have a voice in its affairs. Whether you express that by voting in NOWRA's Board of Directors elections, participating in the Annual Meeting, commenting on proposals, volunteering your time on a committee or task force, or simply sharing your views with a board member, NOWRA welcomes and encourages your involvement in our activities.

Affiliate Support: NOWRA works to support its state organizations in a variety of ways: training discounts, Roe-D-Hoe® support, meetings with state leaders, data/web services and much more.

Roe-D-Hoe®: Held annually at the Pumper Show, this competition is intended to showcase the skills of contractors and the equipment they operate through a series of timed exercises contestants must perform on a backhoe. NOWRA also sanctions a number of state Roe-D-Hoe® competitions around the country; the state winners are automatically grandfathered into the national finals where they compete against the winner of the open competition held during the Pumper Show.

Errors and Omissions Insurance for Designers and Inspectors: NOWRA has endorsed Alteris' SeptiCover Errors & Omissions coverage for designers and inspectors of septic systems. Alteris has been involved in the septic system industry for more than a decade and their SeptiCover E&O package offers extremely affordable premiums for members providing design and or inspection services.

Equipment Loan Discounts: NOWRA has partnered with Wells Fargo to provide members with discounts on interest rates and document fees for equipment purchases in excess of \$50,000. This membership benefit is unique for NOWRA members—no other onsite association is able to offer this discount to its members.

Office Supplies Discounts: NOWRA has teamed with Office Depot to bring your business a better office supply solution.



The fourth variable, soil permeability (Ksat) can also be measured with a high degree of accuracy. There is no need to artificially inflate the loading rate over the actual soil permeability.

There is a safety factor however. If the state water usage rates are used, the loading rate at this inflated number 1.5 is more than what is needed. If actual water figures are used or for a large commercial system, the loading rate is sized at over two times the soil permeability.

The filtrate dispersal area for the system is accurate, and literally hundreds of times safer than any system that uses the soil as part of the treatment process. It is as permanent as public sewer.

The solution is very simple for the dispersal area; advanced treatment allows the dispersal area to be based on the permeability of water, plus a safety factor. There is no need to oversize in order to deal with clogging of biochemical treatment. ●

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Kurt Bihler has more than 35 years of experience distributing, installing and operating many variants of wastewater treatment processing units. He has served as an active consultant with Bio-Microbics systems to a variety of industries to achieve and maintain improved wastewater treatment at less cost for the State of Illinois. Email kurt@bihlertech.org or visit www.biomicrobicsillinois.com.



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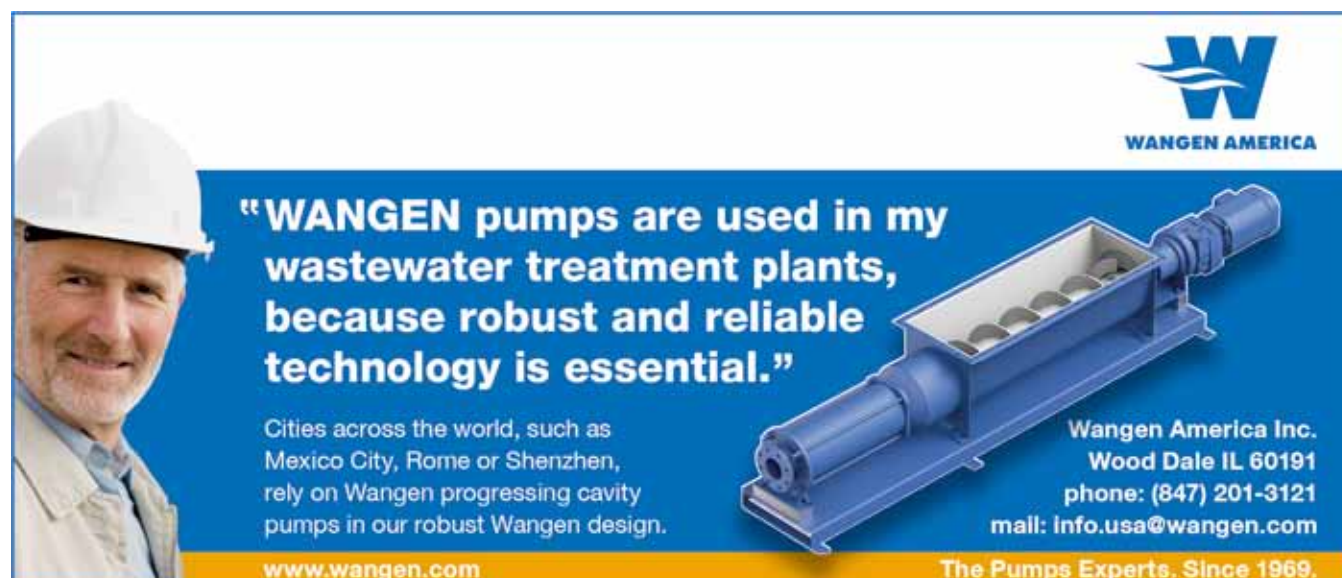
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