Onsite Journal

National Onsite Wastewater Recycling Association

Volume 12, No. 5
October 2003

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- Board of Directors Nominees
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National Onsite Wastewater Recycling Association

DEPARTMENTS

FEATURES

ANNOUNCEMENTS

FRANKLY SPEAKING...

by Tim Frank,
NOWRA President

It's conference time again—with many committee activities moving at a fast pace preparing for the NOWRA Conference—all with the objective of increasing the benefits for members and the industry. The model code committee, under the direction of Mike Corry & Jean Caudill, is making significant progress toward producing a document that will help all industry regulators. I was fortunate to participate in a great meeting in Annapolis, Md., in September, with an excellent turnout of members and the largest group of local regulators ever to attend. Lively discussion and comment sessions followed nearly every topic—demonstrating that both members and the public are interested in the final results of this product. GOOD WORK, GROUP!

THE EPA voluntary management guidelines are still very much on the minds of all service providers, pumpers and manufacturers. There appear to be a number of issues about this program and information about its effect on onsite industry members that need to be addressed. At the same time, there are many individuals who are working to make this program an integral part of the onsite world.

I still believe that the results of using the EPA management guidelines represent a great business opportunity for our industry. Just think—the service provider and pumper will have a lot more work fixing the systems that were placed in the ground many years ago and forgotten. With management contracts in place, service providers have the opportunity for a steady income for many years. As an example, you may have the chance to replace that system when it is no longer serviceable, because the customer knows who you are—and has confidence in your work and service. This whole operation is intended to provide greater protection to public health and groundwater for decades to come.

At the same time, many manufacturers develop plans to sell replacement parts to make systems operate on a continuous basis, helping to ensure reliability in an owner's onsite system. The cumulative results of all these efforts are to give state and local regulators the confidence they need to issue permits for new onsite systems technologies. Alternative systems are not to be forgotten—they are an integral part of tomorrow's solutions to the wastewater infrastructure.

If we look at the whole management program, we can all find a part where we fit—it not only holds the potential to become a money-maker for this industry, but also to provide a valuable contribution to public health and the environment.

NOWRA's "Speciality" Pre-conference Workshop

One of this year's sessions is a new program called "CPR for Onsite Systems." This program is of great value and importance to all members of the onsite industry. Speakers represent all industry levels, with decades of experience working together on a daily basis, taking care of the systems in the manner we know best.

Will we have all the answers? Perhaps not! But if you come and give us your input, experiences and examples, we will do our best to answer the questions and solve problems you are experiencing. The end result is that, together, we will benefit from the dialogue.

The critical factor by which our industry benefits from NOWRA's conference is YOUR PARTICIPATION! We need local regulators to interact with us about the problems they are experiencing. The service providers need to share (with regulators) their ideas for solving their problems. Engineers and designers need to hear about the problems being experienced by service providers—so they can design these problems out of the systems.

If we all work together with all industry segments, NOWRA's 2003 conference will be a major win-win event for all of us and one of the best sessions NOWRA has ever held.

Tim is president of Tim Frank's Septic Tank Cleaning—a successful business of installing, servicing and managing onsite systems throughout Ohio.

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HEADQUARTERS UPDATE

Linda Hanifin Bonner, Ph.D.,
Executive Director

It is hard to believe that the conference is only weeks—*days*—away. The weeks of summer were filled with a blitz of activities relating to conference preparations, developing NOWRA publications and committee and education programs—only to be confronted with the challenges of Hurricane Isabel and no power for 5 days in September. It has taken us nearly two weeks to get caught up on work that was affected by the outage and get in full gear with the final preparations for NOWRA's most significant event. We are anxious to see everyone and get the show on the road. Here is a brief overview of work underway at the national office—with more details to follow on the program plans for 2004 that will be presented at the Annual Business Meeting and in the Nov/Dec Journal.

2003 Conference Update

With the exhibit space sold out for months for the first time, we even have a waiting list; and we have a special area this year for our partnering Associations. Be sure to include them on your list of visits. Local hosts and chairpersons Leanne Whitehead and Brian Corwin are actively preparing for the gathering of NOWRA members and participants at the conference in Franklin, TN. Additional activities being planned are a "silent auction" of interesting and unusual items and two field trips focusing on two distinct topics of interest. Look for TOWA members and be certain to extend appreciation for their efforts to make this a great event. More details are provided in the other sections of the Journal. SEE YOU IN FRANKLIN!

Membership Update

A warm and hearty welcome to Iowa and Indiana Associations, who have become new state constituent groups. We are working to get Kentucky, Mississippi, Alabama, and Oklahoma as state member groups by the end of 2004. Our membership lists and correct addresses are critical to the communications web of the state and headquarters offices. We cannot emphasize strongly enough how important it is to keep your lists up to date and keep the NOWRA office informed of changes that occur ***on a monthly basis.*** Communications are #1! We are investigating changing membership dues to a calendar- year basis, and developing membership recruitment strategies and proposed plans for a Business Membership Program to be discussed at the NOWRA Business meeting.

All current members in the headquarters database were issued and mailed a new membership card, together with the Board of Directors election ballots and updates about the NOWRA conference. We want this card to have meaning for you and to be used. Plans are that your membership number will be used as your access code to the committee working groups on NOWRA's website.

State Leaders Meeting

State Leaders will have their annual meeting with NOWRA officers on Wednesday, November 5th, at 7:00 a.m. at the conference. In addition, State Leaders are being invited by our hosts, the Tennessee Onsite Wastewater Association, to a welcoming reception, Wednesday evening (Nov. 5) at 6 p.m.

Model Performance Code Committee

The September 2003 Model Performance Code Committee meeting was held in Annapolis with an outstanding attendance that included EPA project officers, and state and local officials from Maryland, Delaware and Virginia. Nearly 300 invitations and information packages about NOWRA and the Model Performance Code Program were sent to area legislators; national building, financial, and planning associations; and the area news media. A special briefing/information session was held for this group Wednesday evening. The next model code event is scheduled as a pre-conference workshop on Monday, November 3rd, with the next committee meeting anticipated to occur the last week of February, in Orlando, Florida.

Onsite Journal

The new look is receiving many compliments and proving to be a great success in attracting more advertisers. With more advertisers, we increase circulation to our next targeted group. However, it is the news, your articles, and information about issues facing the onsite industry that make people want to read it. Articles are always needed. The 2004 issue deadline is listed in this issue. Please don't forget—especially state leaders—to share the information about the work in your states with others. ***It is important!***

NOWRA'S Website

We are still working to complete the website—and anticipate completion of all efforts by late November. NOWRA's website designer and technical expert—Kevin Ferrero—will be at the NOWRA conference to answer questions and provide directions on the use of the new systems. State links and hosting sites, and committee working rooms are the next priorities.

Committee Volunteers Needed

NOWRA's committees are always in need of volunteers—and at the annual conference is an ideal time to meet other members and join one of the groups. Look for the meeting date and time of the group of your choice. Also, you can either inform the Association committee chair of your interest or contact me at the headquarters office.

2004 Conference Location Selected and Program Plans Underway

Negotiations for NOWRA's 2004 Conference, to be held at the Hyatt Regency Hotel in Albuquerque, NM, are completed and the contract signed. The date—November 7-11, 2004. The call for papers for the technical education program is provided in this issue and will be a part of the conference materials distribution.

NOWRA's Leadership in the Onsite/Decentralized Industry
Your Participation is Vital!

NOWRA's conference theme and message to members and the public focuses on **LEADERSHIP**! It is a message we will continue to emphasize into 2004 and beyond. Why? We need to promote NOWRA members serving **leadership** roles in their professions and communities. We need to spotlight NOWRA programs and activities that are leading the industry to achieving the Water Quality goals established with the 1987 Clean Water Act. And we must recognize that we all have a role in this **"leadership"** mission.

Leadership represents a lot of things—taking risks, proposing changes and new endeavors, and assuming responsibilities. NOWRA assumed it "*leadership role*" in the mid-1990s through its strategic framework—when it identified the essential steps to move the onsite industry forward. As a Result, NOWRA's leadership role has never been more critical then it is today, as the onsite and decentralized industry moves forward with growth in the 21st century

Assuming a "leadership role" also means assuming a financial obligation. There are costs associated with developing projects and conducting programs to bring about the changes needed. Over the past few years, NOWRA has been most fortunate to have the support of the U.S. EPA, state groups and leaders, private industry members to provide the financial resources needed to begin to accomplish these tasks. Without their help, we would not be where we are today.

But, we have only just started on our work and the challenge to obtain the needed financial funding is met with the competition of our economy. We need the support of all our members to expand our sphere of influence—from meetings with state leaders to community residents—each of us has a leadership role. In early 2004, NOWRA will host a national forum on the issues affecting the onsite industry—and we are seeking partners in this endeavor. We need to bring to the attention of our national leaders, the importance of our work and NOWRA's leadership role in the protection and enhancement of water quality. We need your support—we cannot accomplish this work alone.

Linda Hanifin Bonner
NOWRA Executive Director

A Case Study Illustrating the Need for a Model Performance Code

by Mike Corry, Chairman, NOWRA Model Performance Code Committee

Following this commentary is a news article about implementation of the mandatory system inspection program in a Wisconsin county. It has important lessons for us all to learn.

Background: The State of Wisconsin has required inspection of most systems every three years, some more frequently, since the 2000 code change. Ozaukee County is an urban bedroom community for the Milwaukee metro area and has poor soils for conventional systems. It is one of 2-3 of 72 counties that are aggressively enforcing the code inspection requirement. The remainder are either advancing implementation incrementally as their political/financial situation permits or are ignoring the requirement.

Installed system inspection/maintenance is a topic that the NOWRA code committee and most onsite professionals support. There is, however, a major political element in its execution. Many county administrators face risk of loss of their jobs, and funding for their departments. County board members face the same job risk if the requirements are implemented.

There are two lessons we need to learn from this scenario: (1) keep costs (all types) as low as possible to the citizen, and (2) apply performance/maintenance standards that are linked to specific site risks. Otherwise we will fail politically. Regulators and others sometimes forget this. In most cases it is the county regulator who takes most of the heat from application of codes that are not supported locally because of the cost and lack of perceived risk, while the state staff is somewhat insulated.

Our goal in the model code is to provide policy choice options to allow the adoption of rules that the local and state governments are willing to enforce. The design of the code allows determination of the level of output performance and inspection/maintenance effort to be set for small geographic areas or specific site conditions so that local officials can match site risk with the appropriate standards. The belief is that people will accept regulation if it is linked to clear risk reduction. They will accept nutrient reduction in lake areas where they would not accept it in scattered rural farm areas.

A statewide standard that would require scattered farm homes to install nitrate-reducing systems would be hard to pass and if passed would likely be ignored in these areas. Standards that are stricter than apparent local risk are either uniformly unenforced, selectively under-enforced (enforced at 30 ppm instead of 10) or selectively enforced site by site—often onthe basis of high perceived site risk, low political power of the owner, or because the owner offended the regulator or a politician in some way.

The EPA voluntary management guidelines wisely suggest that the level of management applied be tied to local risk (and unstated —political) circumstances. The NOWRA code does the same.

While the Wisconsin onsite code sets a uniform statewide standard for inspection, it is being implemented on the ground in a manner close to that contemplated in NOWRA code design. The difference is that there are more law breakers (and contempt for the law) under the current Wisconsin code than would exist under the NOWRA policy choice model. The growth of the inspection implementation will occur, *de facto* in Wisconsin, and *de jure* under the Model Code, as there is a cultural shift towards accepting the need to keep sewage below ground and out of the drinking water supply.

Interesting stuff! Yes?

Hope to see many of you during the November 3 *Model Performance Code Workshop* in Franklin, Tennessee.

REPRINTED FROM THE MILWAUKEE JOURNAL

Septic system fees gall residents

New rules require owners to pay for regular inspections

By DAN BENSON, dbenson@journalsentinel.com Last Updated: Sept. 17, 2003

Wes Olmstead and his wife, Nancy, bought their Town of Cedarburg home 12 years ago. It came with a septic system that was at least a dozen years old at that time.

In all the years since, no one in county government ever cared enough about the septic system to inquire how it was doing. That was, until three weeks ago when Wes Olmstead received notice from the county that he needed to have his septic system inspected, and that an inspection report must be filed with the county.

Oh, and send the county a check for $45—on top of the $245 it cost to inspect the system. "Truth of the matter is, I got ripped off," he said.

County officials say it is a user fee levied against owners of septic systems throughout the county to satisfy new state regulations, known collectively as Comm 83.

Under those rules, every septic system has to be inspected every three years; holding tanks have to be checked annually. Owners have to pay for the inspection and make sure the inspection report is filed with the county. The $45 the county wants is to pay for software and staff time necessary to update its database.

Some aren't paying

But Olmstead isn't sure he's going to write a check out to the county, and he may not be alone. Of 2,071 notices sent out so far, 1,018 residents have not yet paid their fee, Planning, Resources and Land Management Director Andy Holschbach said. He noted, however, that more than 900 of those were sent out just recently. Of those, 600 have not responded.

QUOTABLE:

"Truth of the matter is, I got ripped off"

—Wes Olmstead,
Town of Cedarburg homeowner

The county corporation counsel has sent out 47 letters to people who are at least 30 days late in paying their fee to alert them to the fact that they face court fines if they don't pay.

Holschbach said his office receives several calls each week from "concerned" septic owners, "a handful" of whom are angry about the fees.

The county has signed a seven-year contract with De Pere-based Carmody Data Systems to set up the electronic monitoring system at a cost of $84,000 this year and about $68,000 next year, Holschbach said.

Holschbach said the county expects to recoup about $93,000 this year in fee revenue, which will increase to about $145,000 next year as additional septic systems enter the database.

About 9,500 septic systems and holding tanks operate in the county, he said. Roman Kaminski, Comm 83 program manager for the State Department of Commerce, said many counties, like Ozaukee, began tracking new and replaced septic systems in the late '70s and mid '80s. Systems installed before then might not show up in county databases. "Record-keeping was much more spotty before that," he said. Holschbach said a lot of staff time will be consumed in adding those older systems to the database.

Ozaukee appears to be progressing more quickly than most counties in developing its database, Kaminski said. It also is only one of two or three counties doing so electronically, but that number is likely to grow, he said. It will take about three years to complete the task in Ozaukee County, Holschbach said. But the fees will likely continue.

It's not just the fee that bothers Olmstead. On Tuesday, he wrote a check for $245 to a septic maintenance company to inspect and pump his tank. "This is the first time it's been cleaned since we moved in. The system is in fine shape." Told the county is getting complaints from homeowners, Olmstead said: "They should be getting a lot more as soon as people realize its going to cost them $200 to $300 every three years and that they'll have their lawn torn up."

NOWRA 2004-2006

Nominees for Board of Directors

In alphabetical order

Eugene C. Bassett

Eugene ("Gene") Bassett, owner of E.C. Bassett Construction, Inc. in Edgewood, New Mexico, has a general contractor's license, is a charter member of NOWRA, and member of the Florida Septic Tank Association. Beginning with NOWRA's 2000 Conference in Grand Rapids, where he gave a presentation entitled "Swimming Against the Flow," Gene has attended the NOWRA Annual Conferences. As a "self-educated" entrepreneur on the subject of onsite installation processes, he installed his first septic system in 1982, and has been installing alternative onsite systems since 1994, for both residential and commercial use. Over the years he has implemented design changes to ensure that his systems were properly adapted for the New Mexico climate, typography and soil. Gene points out that, by necessity, he has become active in lobbying state and local governmental bodies for the enactment of laws and regulations that will improve the onsite industry in New Mexico. He believes it is important for contractors to be represented on the NOWRA Board because it is contractors who have the practical, first-hand experience installing and maintaining onsite systems.

Willingness to serve on NOWRA's Board and areas of interest

As a licensed contractor, I am interested in serving in this position on the Board, as I believe it is vitally important for contractors to have this representation. NOWRA's Board needs input from the professionals who install and maintain the onsite waste systems, which is my primary area of interest.

Why NOWRA's work is valuable

NOWRA serves a critical role in helping to improve the technology and business of onsite waste management. NOWRA provides the forum that brings together a variety of professionals involved in the onsite industry, giving them the opportunity to learn about new technologies and discuss problems and concerns. NOWRA also serves a vital link between the onsite industry and governmental entities that regulate and affect the future work of the onsite industry.

Perspective on NOWRA's direction

I would like to see NOWRA become the central clearinghouse for information and resources on the subject of onsite waste systems. At present there are a multitude of state and local regulatory agencies, all of which are struggling to establish, revise, or implement regulations to govern onsite waste systems. Based on my own experience in my home state of New Mexico, I know that most state and local regulatory agencies don't have adequate resources or the expertise to enable them to develop or update regulations. Even when the resources and expertise exist, there is a great deal of duplication of effort, with each agency often inventing the regulatory wheel on their own. At the same time, there is no uniformity in the regulations that do exist. I believe that NOWRA should strive to become a central source for resources and expertise on onsite waste systems. NOWRA should consider what role it can play in bringing uniformity to the national patchwork quilt of regulations that currently exist. NOWRA could contact state and local regulatory entities and affirmatively offer NOWRA's assistance, expertise, and resources in this regard.

Tina Edvardsson, P.E.

Tina Edvardsson is a professional engineer with more than seventeen years experience in the design and performance of related projects in the wastewater treatment and air pollution control fields, both domestic and international. She is currently Vice President of Engineering and one of the inventors of the MicroSepTec EnviroServer Advanced Wastewater Treatment System. Her responsibilities also include achieving regulatory acceptance both from a state/county product approval standpoint and for site-specific designs by supporting other design engineers in preparing permit applications. During nearly seven years with MicroSepTec, Ms. Edvardsson has been involved in all aspects of onsite wastewater projects, starting with site evaluation, followed by design, permitting, installation, and finally, continued reporting as required by permit and maintenance of the system. Her successes include obtaining permits for systems with very difficult applications and limited percolation.

Ms. Edvardsson was part of the technical advisory group for the initial California effort writing a Statewide Standard for onsite systems and has since served as a Director on the Board of California On-Site Wastewater Association (COWA). Her previous experience includes working with air pollution control and boiler water chemistryfor several large power plant manufacturers in Sweden and the U.S. With a Masters degree in Chemical Engineering from Sweden, and a Professional Engineering license in Mechanical Engineering from the State of California, her professional experience over the years has been concentrated in the environmental field—either cleaning the water or the air. She has also presented several technical papers on advanced treatment and remote monitoring at conferences like NOWRA, NSF and the Northwest On-Site Wastewater Treatment Short Course, and has several patents in the fields of advanced wastewater treatment and air pollution control.

Willingness to serve on NOWRA's Board and areas of interest

I have always been very interested in NOWRA's work and I am excited about the opportunity to be considered to represent the engineering category on the Board. I am particularly interested in NOWRA's work on a National Model Performance Code and the much-needed efforts to get the state regulators and state

Tina Edvardsson , *cont'd.*

associations to accept and use it as a tool in their current code.

Why NOWRA's work is valuable

The value of NOWRA's work is to bring uniformity to the onsite industry across the States, or at least educate people about what is going on in other states. While the work of the onsite industry occurs within the local jurisdictions, it needs a broader perspective. The global picture needs to be brought down to state and county level.

Perspective on NOWRA's direction

I am hopeful that NOWRA will become more instrumental in affecting the regulations, within the federal, state, and even county levels, through programs like the Model Performance Code. I believe NOWRA needs to be more supportive of the State Associations and communicate how NOWRA brings added value to its members. It is often difficult for an engineer or contractor in Los Angeles County to see the value in belonging to NOWRA, an organization located in Maryland. I would like NOWRA to work harder on the implementation of the Model Performance Code and the EPA Management Guidelines, actively demonstrating to state and county regulators how these programs can be implemented through training and lobbying. Dispelling the negative comments regarding the Model Performance Code as to why it would never work in their area, or that this is just a way of promoting advanced treatment units, is an education component vitally needed. I strongly believe EPA needs a lot of help to implement the Management Guidelines, which we all know are desperately needed but will not be a reality unless they are enforced by state and local regulators. NOWRA needs to become an active national leader for the onsite wastewater industry, especially at this time with changing regulations occurring in many states.

Robert "Bob" Himschoot

Robert "Bob" Himschoot has owned and operated a refuse collection and disposal operation for over 20 years, managing over 100,000 residential and 3500 commercial accounts. The company has also developed, constructed and operated a sanitarylandfill processing 850 tpd of solid waste; and established and operated paper and horticulture collection routes and recycling facilities. He and his sons also own an onsite business providing pumping services and septic system installation; and operate a residuals management facility specializing in solving problem areas with high flow and high strength waste.

Bob currently serves on the Florida Onsite Wastewater Association Board of Directors, and chairs NOWRA's Government Relations Committee. He has a B.S. degree in Forest Management from Louisiana State University and has spent his entire professional career in the solid and liquid waste management and recycling fields.

Willingness to serve on NOWRA's Board and areas of interest

I am willing to serve on the NOWRA Board because I have a strong management team and a good organization that will allow me to spend the time necessary to function as a board member. My area of interest would be best described as "promoting managed decentralized onsite wastewater systems" vs. central sewers.

Why NOWRA's work is valuable

NOWRA should position itself as the universal voice and represent all onsite wastewater manufacturers, engineers, installers, and service companies before the U.S. EPA and state governments as needed.

Perspective on NOWRA's direction

NOWRA has the potential to organize state associations and help educate federal agencies, planners, engineers, developers and homebuilders, as well as installers and pumpers, to the advantages of managed decentralized onsite wastewater systems. To continue NOWRA's work will take dedication and perseverance and financial resources from its membership.

Ronald J. Suchecki, Jr.

Employed by Hoot Aerobic Systems of Lake Charles, Louisiana as a General Manager since 1996, Ron also serves as a Product Development Manager and Environmental Specialist. In this capacity, he has been awarded three patents for his work in waste and groundwater treatment and remediation. He is also a participant in the onsite wastewater rules-writing process in the states of Arizona, Florida, and Texas.

Ron holds his undergraduate degree from Baylor University in Environmental Studies and is completing his masters thesis entitled, "The Environmental, Social and Economic Advantage of Advanced Wastewater Treatment vs. Conventional Systems and Sewer." He is a co-author of the Bioline Drip Design Guide; and developer of a drip disposal program that now has 1000 installations in residential and light commercial applications in four states. Perhaps Ron's most noted "claim to fame" is that he was the co-designer, installer, and operator of the onsite wastewater treatment system that serves the ranch of President George W. Bush, located in Crawford, Texas

Willingness to serve on NOWRA's Board and areas of interest

I believe that my experience in serving on the Texas On-Site Wastewater Treatment Association Board of Directors for the last seven years (five of them on the Executive

continued

Ronald J. Suchecki, Jr., *cont'd.*

Committee) will provide an important link between two major groups. There are two areas of special interest to which I'd like to direct my attention. One is to support NOWRA's efforts to ensure that installers and local manufacturers work together to create a strong and unified national organization. This goal is best achieved by supporting the establishment of strong state constituent groups. The second area is to continue to work on the Model Performance Code Committee and see this work become a reality. I believe that this work is the most important effort that NOWRA has ever undertaken. It is also a personal goal to become a true-seated committee "member" before the work is concluded.

Why NOWRA's work is valuable

NOWRA's current direction represents its value to become the national educational resource and clearinghouse for onsite systems treatment and management. The work underway with the Model Performance Code is a culmination of these efforts. I am honored to be part of the collaborative sharing of knowledge and experience. This work illustrates NOWRA's value to serve the regulatory community as the primary resource when making decisions about systems based on proven results and successes. NOWRA is one of the most valuable networking resources available to this industry. For me, it is often the people I meet and get to know through the NOWRA conferences and meetings that have allowed me to grow and expand my business through the years. When approaching expansion into a new territory or state, the contacts previously established with key regulators or educators at meetings and conferences are invaluable.

Perspective on NOWRA's direction

NOWRA's future is to become an even greater national networking organization that dispels the myths and creates a stronger understanding of the ability of onsite systems to meet the growing needs of our nation. Today, we have increasing numbers of people desiring to reside in areas outside the municipal service areas, where wastewater service is unavailable or costs of public systems are beyond the scope of affordability. Onsite systems offer safe solutions for areas that may be considered environmentally sensitive, or within wasted and crop-land that has historically been considered unusable. NOWRA's value is its ability to disseminate information to the public, by sharing the experiences that work and addressing the false impressions left by older systems.

I believe NOWRA will become an even stronger national resource and forum, where Regulators, Engineers, Educators and Manufactures can meet, share ideas and propel the industry forward on the use of onsite systems. If we focus our energies on supporting our existing constituent groups and establishing new ones, we will be better able to support the installers needs on their level. Installers want to be taught by people who are local, and who understand their particular regulations, requirements and the technologies that are approved and available to them.

Carl W. Thompson, P.E.

As assistant Vice President of Marketing and Government Affairs for Infiltrator Systems, Inc., (Old Saybrook, Conn.) Carl has over fifteen years of experience in site design and construction. He has authored several papers on innovative design and construction with a focus on soils, and is active on the NOWRA Model Performance Code Development Committee, serving on the evaluation and soils sub-committee. A licensed professional civil engineer, Carl received his Masters' degree in Civil Engineering from Drexel University in Philadelphia and an MBA from the University of Delaware. He holds his undergraduate engineering degree from Virginia Tech. Prior to joining Infiltrator systems, Carl spent nine years in engineering, sales, and marketing for a manufacturer of site development products (including sewer pipe used primarily for centralized systems).

In his current position at Infiltrator Systems Inc., (for over six years) Carl is responsible for marketing, government relations and technology transfer between Infiltrator Systems and the regulatoryand design communities. As a frequent traveler, he enjoys the opportunity to work with and learn from different onsite professionals throughout North America. He has worked on projects in 46 of the 50 states (but still hasn't worked on projects in Alaska, Iowa, Nebraska, or South Dakota) and most of the Canadian provinces. He lives in Madison, Conn., with his wife and three children, and enjoys coaching and occasionally poking around the 25-year-old onsite system that serves their home.

Willingness to serve on NOWRA's Board and areas of interest

I am flattered to be nominated to serve on the NOWRA Board, and have enjoyed working on development of the NOWRA Model Performance Code through the committee process. The completion of the Model Performance Code will be a tremendous step forward for the onsite wastewater treatment and recycling industry. But, the effort will be meaningless if political officials do not understand the value of code implementation to their constituents.

I look forward to using my background in government affairs to help educate decision-makers, and support enabling legislation where necessary so that the choice between decentralized and centralized systems is the rational choice. Whenever the model code is implemented, the performance of decentralized systems will become better quantified and verified. The result will be a shift in the use of decentralized systems from 33% to 50% or more of systems serving new residential construction. By measuring this shift in market share we can measure the success of NOWRA. A challenging and achievable goal for us to set is a shift to 50% market share within 10 years.

Why NOWRA's work is valuable

As we move toward a 50% share of new wastewater systems, we create additional and new market and business opportuni-

Carl W. Thompson, *cont'd.*

ties for our members, while at the same time increasing protection of public health and the environment. Systems installed and operated according to the NOWRA Model Performance Code will provide a more sound and efficient solution to our wastewater management needs. By treating and recycling our wastewater on site we avoid the cost and environmental impact of transporting millions of gallons of water to off- site locations for centralized treatment and disposal.

Perspective on NOWRA's direction

NOWRA's future is tied to the Model Performance Code. We need to move quickly to build a better dialogue between NOWRA and decision-makers in each state and province (both the U.S. and Canada). While the model code is simple in concept (a code based on performance rather than prescription), it will take time to digest. We should increase our efforts to actively seek out local decision makers to help them understand how code implementation will benefit their constituents while asking for their advice on what will be required to implement the code. People will pay a small fee to tap into the use of reliable, cost-effective systems that will be available when the code is adopted. That small fee, multiplied by thousands of systems each year, will fund NOWRA initiatives that have been "back-burnered" for several years due to budget constraints.

Leanne Whitehead

Leanne Whitehead is an Industrial Marketing Manager with Tennessee Valley Authority. Her career began as an engineering aide with TVA's Fossil Power in 1985, where she worked in different areas of the generation and sale of electricity. With a mechanical engineering degree (1987), she has worked in TVA's nuclear power plants, completing systems training on both Bellefonte and Sequoyah nuclear plant systems; and in TVA's Customer Service group as a Power Utilization Engineer (PUE), serving as representative to power distributors, commercial and industrial customers, solving a wide variety of problems relating to the use of electricity daily. Since 1996, her work in TVA has been dedicated to marketing electro-technologies to the water and wastewater industry, assisting customers with optimizing plant processes pioneering efforts of new wastewater technologies.

Leanne is currently secretary for the Tennessee Onsite Wastewater Association (TOWA); serves on the Board of Directors for the Center for Decentralized Wastewater Management (Tennessee's training center); and co-chairs the National Onsite Wastewater Recycling Association 2003 Annual Conference. In 2002, she was named as one of TVA's Distinguished Women.

Willingness to serve on NOWRA's Board and areas of interest

I am deeply honored to become a candidate for the NOWRA Board. The industry of decentralized wastewater systems (DWW) is a fast growing business needing a national forum to produce solutions for problems encountered. My goal is that DWW become an even greater and viable wastewater infrastructure solution throughout the United States. As a participant/ observer of the wastewater industry's market transformation for a number of years, I have been in the forefront of TVA's efforts promoting this program to state regulators and local communities, and supporting the establishment of Tennessee's first DWW training center. I want to take my skills and commitment to this industry and apply them at the national level to support NOWRA's growth. As Co-Chair for the 2003 NOWRA conference, I believe that my experience will add a valuable contribution and support to future conference efforts. Another area of particular interest is the regulatory committee, to which I will bring my experience of working with regulatory officials through TVA, to advance NOWRA's programs.

Why NOWRA's work is valuable

The wastewater industry is changing. The old solutions are not always the right approach and municipal sewer plants are under tremendous environmental and business pressures to improve water quality and provide treatment capacity. In order to support a growing economy and address the wastewater infrastructure issue(s), decentralized/onsite systems are the most effective and affordable solution. At the same time, a national entity (or forum) is needed to address the challenges facing this industry's maturation process. This is the role that I see NOWRA fulfilling and the primary reason this organization is so valuable.

Perspective on NOWRA's direction

With the maturing of any industry, there are obstacles to be addressed—and the onsite industry is no different. Having a diverse board, where everyone brings the perspective of their own particular part of the industry to the table, is an important goal that NOWRA has pursued. I would like to see NOWRA's board continue to focus on making the most of our respective strengths to pursue the new opportunities that are available to us in this industry.

Conference Overview

SUNDAY,
NOVEMBER 2, 2003

1:00–5:00 p.m.
NOWRA Board of Directors Meeting
Thoroughbred Board Room
Agenda: Financial and Business Reports, 2003 Conference Update, Committee Reports and 2004 Plans, 2004 Membership Strategies, 2004 Election Results, Preparations for the December Planning Session
This meeting is open to members and committees to participate with Board members in the ongoing work of the Association.

3:00–6:00 p.m.
Conference Registration
Conference Center Lobby
Exhibitor and Pre-conference Workshop materials pick-up; on-site registration for the pre-conference workshop

3:00 p.m.
Exhibitor Set-Up
Exposition Hall-Champion Ballroom
Special arrangements are made for exhibitors to have access for early set-up.

MONDAY,
NOVEMBER 3, 2003

7:00 a.m.–5:00 p.m.
Conference Registration
Conference Center Lobby
Materials pick-up and registration for pre- and full conference sessions

7:00–9:00 a.m.
Continental Breakfast
Conference Center Lobby
Provided for Workshop participants

PRE-CONFERENCE WORKSHOPS

8:00 a.m.–5:00 p.m.
Model Performance Code
Meeting Room #1
See page 17 for more details.

CPR for ONSITE Systems
Meeting Room #2
See page 17 for more details.

Noon–1:00 p.m.
WORKSHOP LUNCH
Guest Speaker: Dr. Robert Rubin
How We Got Here And Look At Where We Are Going!
See page 14 for more details.

9:30 a.m.
GOLF TOURNAMENT, PARTICIPANTS ASSEMBLY
Hotel Lobby
Francis Hammersmith, NOWRA Program Manager
See page 14 for more details.

5:00–7:00 p.m.
WELCOMING RECEPTION AND OFFICIAL OPENING OF NOWRA TECHNICAL EXPOSITION
Exposition Hall-Champion Ballroom
A fun-filled evening—meet old friends and new, and check out the exhibits of our industry's experts.
See page 15 for more details.

TUESDAY,
NOVEMBER 4, 2003

7:00 a.m.–5:00 p.m.
Conference Registration
Conference Center Lobby
Materials pick-up and registration for all conference sessions.

7:00–9:00 a.m.
Continental Breakfast
Exposition Hall-Champion Ballroom
Provided for full and one-day registrants

7:00–7:45 a.m.
Prayer Breakfast
Appaloosa Room
Dr. Ted Loudon
See page 15 for more details.

8:00–8:45 a.m.
NOWRA CONFERENCE OPENING CEREMONIES
Exposition Hall-Champion Ballroom
Invited guest speakers to welcome NOWRA conference attendees to Franklin, Tennessee, include Williamson County Executive Rogers Anderson, and City of Franklin Mayor Jerry Sharber.

9:00 a.m.
TECHNICAL EDUCATION SESSIONS BEGIN
See page 21 for detailed information.

9:00-11:45 a.m.
Spouse & Guest Program
Thoroughbred Boardroom
Cool Springs Conference Center, Left Lobby
See page 14 for more details.

Noon–2:00 p.m.
NOWRA MEMBER RECOGNITION & AWARDS LUNCHEON
Guest Speaker: James Hanlon, Director, Office of Wastewater Management, U.S. EPA
Included in the full conference registration fee, NOWRA's annual Awards Lunch is an important highlight to recognize and honor the dedicated volunteers and NOWRA industry members who have donated their time and support to building the Association.

WEDNESDAY,
NOVEMBER 5, 2003

7:00 a.m.–2:00 p.m.
Conference Registration
Conference Center Lobby
Materials pick up and registration for all conference sessions

continued

Conference Highlights

Pre-conference Workshops Luncheon

Monday • November 3 • Noon-1:00 p.m.

HOW WE GOT HERE AND LOOK AT WHERE WE ARE GOING!

Guest Speaker – Dr. Robert Rubin

Dr. Rubin's message focuses on the U.S. EPA's recognition that onsite systems are a permanent part of the nation's wastewater treatment infrastructure. As a result, the onsite industry's direction and work are now even more important. The federal government's realization is enforced by the recognition that the $300 billion investment in the "big pipe" infrastructure has failed to reach low-density housing outside urban areas. Further, it is also recognized by many states that the increased funding needed to maintain the existing big pipe infrastructure and expand municipal systems will not occur in the 21st century.

Bob Rubin, a research and professional development professor of biological and agricultural engineering at North Carolina State University in Raleigh, is presently on detail with the Natural Resources Conservation Service and U.S. EPA. He has conducted numerous research studies and training programs for onsite wastewater treatment processes, decentralized wastewater management, creative water supply planning, and residuals management.

Dr. Rubin has made significant contributions to the NCSU Cooperative Extension Program, the Continuing Education Division,

Golf

Monday • November 3 • 9:30 a.m.

NOWRA members can get in a bit of relaxation before settling into the technical sessions. The Legends of Tennessee is one of the country's premier golf courses. Reservations and group assignments will be provided in advance; late registrations can be accommodated. Format includes best ball foursomes, closest to the hole contest and longest drive. This event is destined to be a highlight of the year's activities. Group photos will also be taken. Golfers will meet in the hotel lobby for transportation to the

Spouse & Guest

Tuesday • November 3 • 9:00 a .m.

This year's Spouse and Guest Program features activities that will long be remembered as part of the Franklin and Nashville historic and cultural experiences. Tuesday begins with coffee, conversation, and getting to know each other. Following the Awards Lunch, the group will be transported to the historic Franklin area for touring and shopping. Wednesday's activity will be a day-long trip to Nashville, starting with the Music Hall of Fame and then opportunities for other activities

7:00–9:00 a.m.
Continental Breakfast
Exposition Hall–Champion Ballroom
Provided for full and one-day registrants

7:00–8:45 a.m.
NOWRA Committee Meetings

9:00 a.m.
TECHNICAL EDUCATION SESSIONS BEGIN
See page 21 for detailed information.

1:00–2:00 p.m.
NOWRA ANNUAL MEMBERSHIP MEETING
Exposition Hall, Champion Ballroom
This annual meeting, as required by NOWRA By-laws, enables attending members to ask questions of our leaders about the operation and future plans for the Association. Important agenda topics include a report on 2003 committee and program activities, a financial update, the 2004 program, and introducing the newly elected 2004 Board of Director members.

5:00 p.m.
Tennessee Onsite Wastewater Association Reception
For all NOWRA State Leaders and representatives

An appreciation reception hosted by TOWA officers and members, who invite all State Leaders to get acquainted.

THURSDAY, NOVEMBER 6, 2003

8:00 a.m.
Continental Breakfast
Conference Center Lobby
For Field Trip, Consortium Members & Roundtable participants

8:00 a.m.
National Consortium Institutes Committee Meeting

Meeting Room #2–Conference Center
Contact Dr. Bruce Lesikar for registration details and the planned meeting agenda.

8:30 a.m.
NOWRA Field Trip Departures
Two Field Trips are plannd for Conference attendees. Separate fee and pre-registration required—except for NAWT Inspectors. Box lunch &
transportation provided.
See page 15 for more details.

8:30 a.m.
NOWRA ONSITE INDUSTRY ISSUES ROUNDTABLE Approvals, Reductions & Pretreatment— Is the Current
System Fair?
This unique Roundtable Forum addresses the controversial issues encountered daily by industry pro-

SPECIAL EVENT

Silent Auction

Exposition Hall – Champion Ballroom
Bidding closes at Noon, Wednesday

New this year, we're pleased to introduce a new event to promote member appreciation and enjoyment. A silent auction of unique gifts will surround the centerpiece of our program—an original watercolor painting by Susan Rutter, designed to commemorate NOWRA's work in the industry.
All bidding must be completed by noon, Wednesday. Items will be awarded to winners following the business meeting.

Conference Highlights continued

Tennessee

Monday • November 3 • 5:00 p.m.

Dont' miss the Welcoming Reception & Official Opening of NOWRA Technical Exposition

Grab your "partner" or a "friend" and join us for the opening of the conference exposition. Plans for a fun-filled evening of original "Tennessee Bluegrass" music and "a taste of the south" are in place. We look forward to meeting old and new friends and most of all to viewing the fabulous exhibits of our industry's experts.

The importance of the service providers in this industry cannot be overstated, and NOWRA provides the premier

Prayer

Tuesday • November 4 • 7:00 a.m.

Dr. Ted Loudon

The annual NOWRA Prayer Breakfast has become a tradition and a highlight for many at the meeting each year. This is a time when we meet to share what God is doing in our lives and to pray for the concerns of NOWRA. All are welcome and encouraged to attend. Participants pick up breakfast

Field Trips

Thursday • November 6 • 8:30 a.m.

Two Field Trips are planned for Conference Attendees.

Separate fee and pre-registration required—except for NAWT Inspectors.
A special certificate and 8 CEUs are issued to all field trip participers.

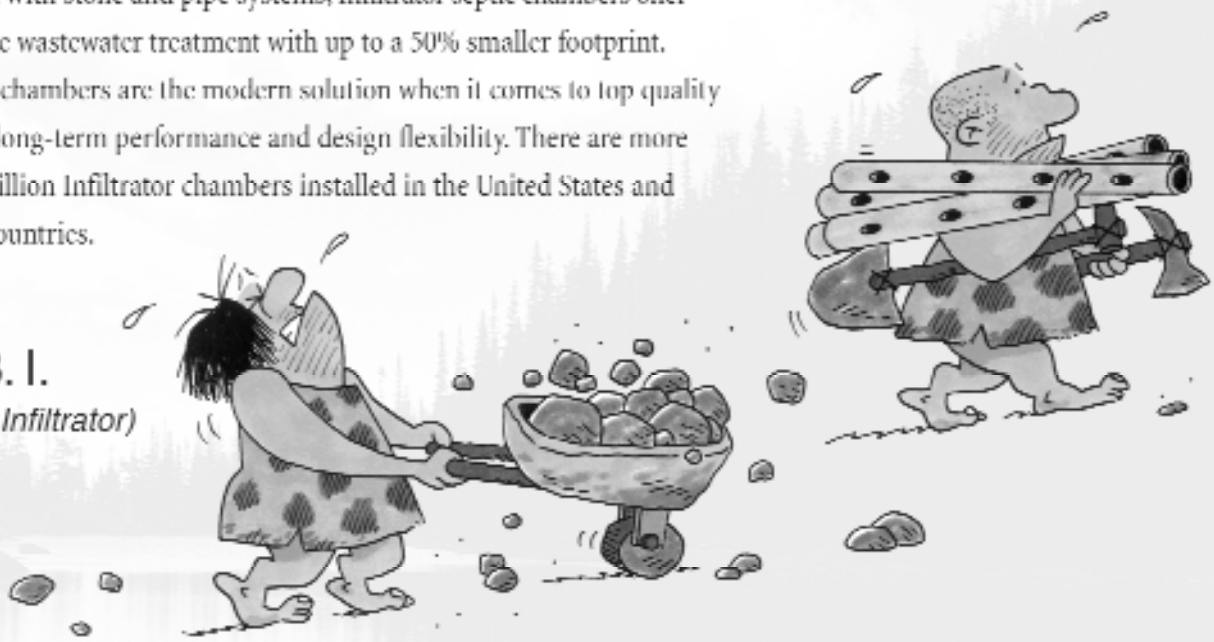
Field Trip 1
Proper Procedures for Inspecting Onsite Systems
After an introductory session of training modules by Dr. John Buchanan at the State of Tennessee Training Center, this field trip takes individuals to an actual residential location and goes through all of the steps and procedures required for inspecting septic and onsite systems. While this trip is a prerequisite for participants in the NAWT Inspectors' Education and Training Certification Course, it is open to others desiring to learn first-hand what's required for servicing and management

Field Trip 2
Onsite System Management of a Community Subdivision
This field trip also visits two locations. The first is a 174-unit residential subdivision currently served by a decentralized wastewater system. Each home has a STEG unit. The effluent is conveyed to a sand-gravel filter. Once the effluent is cleaned, it is dispersed into the ground, using drip irrigation. This system also demonstrates how computer controls and remote monitoring provide state-of-the-art operations

Step Out of the Stone Age . . .

Compared with stone and pipe systems, Infiltrator septic chambers offer comparable wastewater treatment with up to a 50% smaller footprint. Infiltrator chambers are the modern solution when it comes to top quality products, long-term performance and design flexibility. There are more than 27 million Infiltrator chambers installed in the United States and 13 other countries.

B. I.
(Before Infiltrator)



A. I.
(After Infiltrator)

Our chamber technology is based on fundamental principles of physics, soil science and topography and is scientifically engineered for the job. Today, it's more important than ever to safeguard our precious natural resources. With Infiltrator chambers there's no stone, which means less site disruption and more efficient use of space.

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PRE-CONFERENCE WORKSHOP 1

Model Performance Code

Presented by NOWRA's Model Performance Code Committee

This one-day workshop presents an opportunity for NOWRA members, state officials and industry representatives to participate in, and influence, the code development process. It focuses on the significant progress made by NOWRA's Model Performance Code Committee since the September 2002 conference in Kansas City. It also represents a major milestone in this work, with products that enable a critical and important dialogue to occur at this time between committee chairs, NOWRA members and onsite industry representatives. The materials developed over the past year include soils evaluation matrices, output standards, guidance documents, component evaluation and listing criteria and code language—all of which will be presented.

Validating Dialogue and Input

The status of the Committee's work at this point provides a valuable opportunity for input from all the interests involved in the onsite industry. Information received from the workshop deliberations will be used by the code committee to produce a public hearing code draft for the 2004 NOWRA Annual Conference. The committee's 2003 working documents will be used throughout the workshop session to engage participants in active discussions and ultimately provide direction for Committee work in 2004. A workshop report incorporating information received in all of the breakout sessions will be placed on the NOWRA website. It will include a summary of the key points provided by participants on each topic area.

Workshop Presenters and Agenda

7:00 a.m.
Registration, material pick-up and continental breakfast
Conference Center Lobby

8:00 a.m.
Welcome and Introductions
Tim Frank, NOWRA President

8:10 a.m.
Dr. Richard (Dick) Otis, P.E., Applied Technologies, Ayres Associates (NOWRA Technical Practices Committee Co-chair)
and Michael Corry, (Chairman, NOWRA Model Performance Code Committee)
A) Dr. Otis and Mike Corry will jointly outline the four elements of a performance code.
B) Dr. Otis will present a case study of the Northern Minnesota Performance Code Framework that implements the four elements and incorporates the EPA Voluntary Management Guidelines within the document.
C) Mike Corry will evaluate the implementation of performance provisions based on interviews with thirteen states.

9:00 a.m.
Standards for Watertight Tanks
Bob Pickney, P.E., Pickney Engineering, Nashville, TN
This discussion addresses the results of the sub-committee's work to develop standards for watertight septic tanks.

9:30 a.m.
Developing Model Performance Code Guidance Documents
Jean Caudill, R.S., Ohio Department of Health, Committee Vice-Chair and team leader of the Guidance Committee
Addressing the important public health and environmental risk reduction considerations that need to be made by state and local governments as they make decisions on the levels of performance they will demand from new onsite systems is the focus of this presentation.

10:00 a.m. BREAK

10:15 a.m.
Evaluation Criteria for Performance Standards
Fred Bowers, Ph.D., New Jersey Department of Environmental Protection, Team leader of the Model Performance Code Evaluation Committee
The results of the subcommittee's work as to how NOWRA, in cooperation with existing test centers, will evaluate and list treatment components by their output characteristics will be presented.

10:45 a.m.
Determining Soil Component Treatment Credits
Dr. Jerry Tyler, University of Wisconsin, and Dr. Del Mokma, Michigan State University, present the findings of a year-long effort by the Soils Subcommittee to develop soil treatment credit tables. The committee will present a paradigm shifting methodology for drainfield design emphasizing time in the treatment zone and access to oxygen as prime determinants of bacteria and organic material reduction, shifting away from vertical separation prescription. They will also discuss the work of a subcommittee dealing with the effects of hydraulic restrictions that are placed on or develop at the effluent/soil interface.

Noon-1:00 p.m. LUNCH & GUEST SPEAKER – Dr. Robert Rubin

1:00 p.m.
Putting the Pieces Together—A National Model Performance Code
Michael Corry, Committee Chairman
This discussion addresses the proposed layout and content of the NOWRA code document, including guidance, classification matrices code language, definitions, adopted standards and appendices.

1:30-4:00 p.m.
Concurrent Roundtable Discussions
During the afternoon, four groups, each addressing key components in the development of the performance code documents, will provide additional opportunities

continued

Pre-Conference Workshop 1: Model Performance Code, continued

2. Assessing Regulatory Capacity
Paul Chase, MA, LEHP, Facilitator
Regulatory capacity to implement the code administrative activity needed to support modern design and technology is an important element in an onsite program. This discussion will identify the elements of needed capacity and the results of administration of a code. The resulting assess ment tool will assist the regulators and industry in assuring that there linkage between the needs of the program and the regulatory resources delivered.

3. Adopted Standards and Protocols
Steve Branz, P.E., Facilitator
This discussion focuses on the standards and protocols that should be referenced or incorporated by reference in the code text.

4. Administrative credits for EPA Management Level V
Mike Hines, P.E., Anish Jantrania, P.D., Facilitators
This discussion addresses the appropriate administrative
standards that should be applied to EPA Management Level V organizations—those that own and operate cluster systems and/or scattered site systems.

4:00 p.m.
Workshop Wrap-up Session
Following the deliberations in the four workgroups, participants will reconvene to comment and provide feed-

PRE-CONFERENCE WORKSHOP 2

CPR for Onsite Systems

Presented by NOWRA's Technical Practices and Education Committees

This unique, one-day workshop is about areas affecting failing conventional septic and newer onsite systems and addresses how to begin to solve problems experienced by owners. Participants learn first-hand from "experts in the field," the reasons systems fail and steps needed to correct and revive them. NOWRA's presenters bring a significant range of skills in dealing with system failures, troubleshooting and problem-solving.

Workshop Presenters and Agenda

7:00 a.m.
Registration, material pick-up and continental breakfast
Conference Center Lobby

8:00 a.m.
Welcome and Introductions
Dr. James Converse, University of Wisconsin-Madison; Chairman, NOWRA Education Committee

8:15 a.m.
Why Systems Fail and their Core Problems
Dr. Robert B. Rubin, U.S. Environmental Protection Agency

Defining failure and identifying the core problem(s) found in many systems is not only the beginning of this session, but is also fundamental to understanding the issues affecting these conditions. These conditions also include estimating hydraulic and organic loading rates to the system.

9:15 a.m.
Diagnosing the Septic Tank
Tim Frank, Tim Frank Septic, Columbus, Ohio

As a pumper for nearly 30 years, and current NOWRA president, Tim Frank addresses the fine points in learning how to determine if a septic tank is robust or in major trouble. From that diagnosis, he then concentrates on information about the water tightness of tanks.

10:15 a.m.
Analyzing Aerobic Treatment Units (ATUs)
Tom Fritts, Residential Sewage Treatment Co, Grandview, MO

Providing service for several types of aerobic treatment units

(ATUs) for over 15 years, Tom Fritts describes how the various ATUs being used today function; together with a problem-solving strategy in how to assesses their performance levels.

11:15 a.m.
Giving New Life to Sand Filters
Ron Lindsay, Miland Engineered Systems, Dearborn, MI

Information on resuscitating stressed single pass and re-circulating sand filters will be provided by Ron Lindsay, with many years experience as a service provider and supplier.

Noon-1:00 p.m. LUNCH & GUEST SPEAKER

1:15 p.m.
Soil Based Systems and Distribution
James Converse, University of Wisconsin, Madison, WI

Learning how to renovate soil based treatment systems is a critical component in many areas. Not only is Converse the founder of this method, he is also one of the nation's leading researchers and teachers in this topic area. Following this discussion, distribution systems are also addressed.

2:15 p.m.
Evaluating and Repairing Control Panels
Ronnie Thomas, Triple R Construction, Nokesville, VA

As an experienced installer and service provider, Thomas provides essential methods to evaluate and repair systems' control panels.

3:00 p.m. BREAK

POST-CONFERENCE ROUNDTABLE DISCUSSION

Product Approvals and Drainfield Reductions: Are They Scientific? Are They Fair?

Goals of this program:

- Raise awareness of the existing procedures involved in the permitting process of advanced onsite systems
- Identify barriers and solutions

Introduction: A Quandary of Situations

As manufacturers of onsite wastewater treatment equipment invest in and develop new and more efficient products for an ever-growing decentralized marketplace, they are continually challenged with the task of gaining both regulatory approval and product acceptance. Challenges exist with the permitting process, which are the result of an extensive (and often confusing) web of local and state regulations that are as varied as the hundreds of counties that make up the United States.

The "county-by-county" regulatory permitting process, without strong national guidance, further affects the acceptance of systems and technology. For example, one significant issue being experienced today is known as "footprint reduction," a permitting factor that affects the overall size of onsite system installation. Advanced systems using newer technology today for residential and community wastewater treatment, often do not require the same size of drain-field acreage as typically used by more traditional septic systems. The issue of land requirements is important to developers and owners, but at the same time, may be in conflict with public health and environmental concerns.

Also, installation size is often used by manufacturers to establish product preferences. Smaller drain-fields and lesser separation distances are frequently sought by manufacturers to gain product identify in the market place. The appeal of this approach is that it enables developers to maximize lot yield. It also may allow for the lowest cost installation possible. To justify these approvals or reductions, manufacturers present regulators with data, such as that from fully developed "third party certification programs," "anecdotal research," and "self-generated information." In some cases, approvals or reductions are sought based on unit population history and experience. In other situations, manufacturers seek and gain approvals via the state legislatures or other legal avenues.

While these approaches have proven successful in varying degrees, the case is being made by the "competitive" manufacturing community that the playing field is not fair! The "county-by-county" process currently being used results in a lack of uniformity and is fraught with numerous examples of approvals being granted based on unproven data, personal preference, political influence or fear of legal action. With the demand growing for the use of advanced decentralized and onsite systems, the industry and regulatory community must find a way to support each other.

The Approach to Resolving the Issues

The NOWRA Post-Conference Roundtable Discussion is being held so that affected parties can present their scenarios and opinions.
A panel of respected practitioners from all sectors of the decentralized industry will provide their insights and experiences on these issues, and engage the audience in a lively dialogue. The overall goal is to identify positive solutions that create a win-win situation for all parties. Specific questions to be addressed include:

- What justifies a reduction—quality, quantity, or equalization?
- What creates problems in undersized systems—solids or loss of water quality?
- Is more O&M required with reductions?
- Is an EPA sand filter at lower risk than an extended air ATU?
- Will systems meet 30-year design life?
- What three procedures exist for reductions?
- What procedures should be fair?
- Should a regulatory individual be required to be an "expert" in all systems? What is the level of understanding? How do they gain or obtain that knowledge?
- Is self-generated data equivalent to third-party certification programs?

Panel participants represent all of the industry sectors involved in the problem, and have volunteered their time to stimulate this much-needed discussion. They include:

- Moderator – Robert B. Mayer, PE, NOWRA Past President
- Tom Bruursema, NSF (National Certification Program Manager)
- Bennette Burks, Manufacturer's Representative (ATU)
- David Morgan, Manufacturer's Representative (ATU)

Onsite Systems—A to Z

Originally developed for presentation at the 2000 NOWRA Annual Conference, this two-day course features credentialed educators and technical experts who provide attendees with fundamental education, knowledge and skills on industry topics. It is structured for individuals
desiring a better understanding of the components of older and newer onsite systems, officials responsible for making regulations, and

History of Wastewater Treatment and Onsite Systems
DR. MARY MARGARET MINNIS
Tracing back the history of wastewater treatment over the centuries, we learn that humans have been struggling with their wastes, sometimes with incredible innovations. Gaining knowledge about how the ancient cultures advised their citizens to live a sanitary life and how these practices are still followed today sets the stage for this program. The evolution and development of today's onsite systems is made clear, and credit is given to those innovators over the last century and a half who have worked to improve and protect water quality.

Dr. Mary Margaret Minnis teaches environmental sciences and chemistry at Pace University in Pleasantville, NY. She holds a B.S. in Chemistry and an M.S. and Ph.D. in Environmental Science from SUNY College of Environmental Science and Forestry. Dr. Minnis is also co-chair of NOWRA's Education Committee and the co-author, with Bennette Burks, of the textbook "Onsite Wastewater Treatment Systems."

Chemistry of Water and Wastewater
DR. JAMES PETERSON
The nature of the water molecule, and its ability to dissolve, suspend and move other things, is critical to our understanding of wastewater treatment. This session covers the basic features of this anomalous molecule before delving any deeper into the topic. Most of the hard work of purifying sewage is done by microscopic agents in the soil or other media, which is why it is important to know about this symphony of organisms that change the sewage into potable water.

Dr. James Peterson is a water quality specialist at University of Wisconsin Extension, and director of the Environmental Resources Center in the Madison College of Agricultural and Life Sciences. He has worked with lake renewal, agricultural/barnyard runoff and urban runoff projects. He has a B.S. in Chemical Engineering, an M.S. in Water Chemistry and a Ph.D., Water Chemistry Program, Department of Civil and Environmental Engineering, University of Wisconsin-Madison.

Microbiology of Wastewater Treatment
DR. MARY MARGARET MINNIS
The process of turning wastewater into clean water involves the participation of many types of microorganisms. However, many of the microorganisms found in wastewater could be pathogenic. The session introduces the different types of microorganisms that live in the septic tank and in the soil as the wastewater is treated and that purify the wastewater before returning it to the water environment.

See Minnis profile, above

Soils and Site Selection
LEROY JANSKY
Since most onsite systems send the effluent from the septic tank into the local soils for treatment, it's important to understand the structure and function of soils. This presentation describes the
genesis of soils, how they can be differentiated, and how different ones will work with onsite systems.

Mr. Jansky has been employed by the State of Wisconsin as an inspector, consultant, and soil scientist since 1980. He has a B.S. in Natural Resources, Soil Science, from UW-Madison. He is a Registered Professional Soil Scientist, Wisconsin Department of Regulation, and was President of the Wisconsin Society of Professional Soil Scientists in 2001.

Sources and Septic Tanks
DR. JAMES CONVERSE
Septic tanks themselves are an interesting topic and the sizes and shapes of the best ones have been debated for over a hundred
years—and that debate rages on. In this session, participants learn about grease traps and other pretreatment structures that work in concert to produce an effluent that can be effectively treated in the receiving soil or other treatment medium.

Dr. James Converse is a Professor of Biological Systems Engineering at the University of Wisconsin-Madison, where he has been involved in onsite wastewater systems since 1970. He has been involved in the development of mound and at-grade systems and has done extensive monitoring of onsite systems in the field. More recently, he has concentrated his work in the evaluation of the performance of advanced treatment devices and soil based units under field conditions, including the evaluation of drip distribution systems for pathogen removal and cold weather. He has B.S. and M.S. degrees in Agricultural Engineering from North Dakota State University and a Ph.D. in Agricultural Engineering from the University of Illinois.

Aerobic Onsite Treatment
Dr. James Converse
Principles of advanced pretreatment will be discussed.
Topics

Onsite Systems—A to Z, continued

covered include ATUs, media, sand, peat, and textile filters. Effluent quality parameters will also be presented.

See Converse profile, above

Soil-based Treatment Systems

BENNETTE BURKS, P.E.

Soil-based treatment systems are those with which we are most familiar and the ones that get the most attention because of "failure." This session reviews the various types of systems and the mechanisms for treatment efficiency. Descriptions as to how to site and design a soil-based system and make it last indefinitely are provided.

Bennette Burks, P.E., is the Director of Engineering for Consolidated Treatment Systems in Franklin, Ohio. In previous years, he administered Wisconsin's onsite program. Burks holds B.S. and M.S. degrees in Civil Engineering from the University of Arkansas and a B.S. in Psychology from the University of New Orleans.

Effluent Distribution: Gravity and Pressure Systems

DR. MARK GROSS

The importance for the designer and engineer to know how the hydraulics of the system work cannot be overstated. Explanations as to how gravity-based and pump-based hydraulics work to get the effluent moved to different places for treatment. Methods for distributing effluent into a soil or other medium are outlined and the underlying hydraulic theories are also given.

Dr. Mark Gross is a Professor of Civil Engineering at the University of Arkansas, teaching and researching in onsite wastewater treatment. He is currently involved in a Consortium Project to develop an engineering curriculum for decentralized wastewater systems.

In addition, he works with small community wastewater systems and phosphorus removal using fixed-film reactors and chemical precipitation. Gross has a B.S., an M.S. and Ph.D. in Civil Engineering from the University of Arkansas.

Onsite Systems Installation

DR. ANISH JANTRANIA, P.E.

Many systems fail to operate properly because they were not installed properly. From the pipes to the tanks to the fields, every step in the installation procedure is critical for the long-term success and life of the system. As presented in this session, the basics of installation and examples of how the process can have checks and balances to optimize the process demonstrate how to follow the right path to success.

Dr. Jantrania is the Technical Services Engineer for the Virginia Department of Health, Division of Onsite Sewage. He was the Technical Program Coordinator at the National Small Flows Clearing- house for five years. He holds a B.E. and M.S. from Ohio State, a Ph.D. in Agricultural Engineering from Clemson, and an MBA from West Virginia University.

Operations and Maintenance

DR. BRUCE LESIKAR

Now that your system is installed and working away, what is left? Operation and Maintenance—a topic that is increasingly becoming more important across the U.S. as regulators address issues affecting non-point sources of pollution. As a result, keeping your system operating so that it functions well for the owner and does not offend neighbors is just as important as keeping the system operating optimally and preventing water pollution. This topic is a critical factor in the success of onsite systems, and protecting your investment.

Dr. Bruce Lesikar, an Associate Professor in the Agricultural Engineering Department at Texas A&M University, has been involved in onsite wastewater treatment and the operation of systems for nearly 20 years. He holds an M.S. from Texas A&M University and a Ph.D. in Agricultural Engineering from the University of Illinois. He conducts research on particulate emissions from processing and production facilities and water and wastewater treatment for residential, community, and agricultural sources.

Land Use and Zoning

RANDALL MILES

In many regions, septic system regulations have served as the de facto land use plan. With the advent of advanced treatment system and performance-based codes, the importance of planning and zoning as a land-use method has become more obvious. Examples of good and bad land-use planning will be given and success stories will be told. Learn how to control land use and provide onsite wastewater treatment and keep everyone happy

Randall Miles is an Associate Professor of Soil Science at the University of Missouri, where he teaches the Introduction to Soil Science course, Soil Geo-Archaeology, Soil Morphology and Judging. He also conducts research in the areas of water movement in soil landscapes, onsite wastewater systems and long-term agronomic plot research. Miles received his B.S. and M.S. degrees in Agronomy from Purdue University.

Nutrients

Passive Nitrogen Removal System: Treatment Performance
PIO LOMBARDO
Description of three independent performance evaluations of the Nitrex nitrogen removal system. Over six years of performance data for Nitrex installations at Polson, MT; LaPine, OR, and Cape Cod, MA, producing effluents with less than 0.10 ppm of Nitrate-N and less than 3.0 ppm Total N.

Pio Lombardo, P.E., President of Lombardo Associates, Inc., has a B.S. in Chemical Engineering and an M.S. in Environmental Engineering, and has over 30 years of experience engineering decentralized wastewater systems. He has engineered over $200 million in decentralized projects, including innovative, engineering-excellence- award-winning projects with onsite, cluster, and large communal, using constructed wetlands, wastewater systems.

A Denitrification Process Based on a New Filtering Media for Onsite Wastewater Treatment
ROGER LACASSE
The session presents the results obtained in the development of a denitrification process based on an innovative, patented, biofiltering medium, composed of textile and peat, allowing high liquid hold-up and oxidation capacity. The system has been tested on bench and full-scale units for more than 3 years, with performance obtained that corresponds to advanced secondary treatment levels with a 60% reduction in total nitrogen.

Mr. Lacasse is the research and developent engineering director at Premier Tech Environment, a company specializing in wastewater treatment in Rive de Loupe, Quebec, Canada. He is a professional engineer with an M.S. in Hydraulic Civic Engineering and has over 20 years of experience in hydrology, water and wastewater treatment. His main fields of activity are wastewater treatment (domestic, industrial, landfill leachate) sludge conditioning, stabilizing, and dewatering.

Denitrifying Onsite Systems Using Forced Aeration and Trickling or Packed Bed Filters
BARBARA RICH
A variety of forced-aeration advanced treatment systems and trickling filters have been installed for the La Pine NDP. This presentation reviews the treatment systems and their performance in comparison with sand filter effluent and the projects's performance
criteria of 10 mg/L BOD5, TSS and TN and a two-log reduction in fecal coliform and E. Coli.

Ms. Rich is the Project Coordinator for the La Pine National Decentralized Wastewater Demonstration Project, with extensive
experience in industrial and municipal wastewater monitoring in the Metropolitan Boston area, hazardous waste site assessment, large-scale watershed management planning, and local land-use planning. She has a B.S. in Geology and an M.E. combined with Public Policy Analysis from the University of Rochester in Rochester New York.
She received a Master's degree from Boston University in Energy
and Environmental Studies with a concentration in Water Resources Management.

Nitrogen And Phosphorus Removal In Onsite Systems
MARK GROSS
This presentation provides an overview of nutrient removal with specific application to decentralized wastewater treatment processes, addressing how nutrient removal in onsite wastewater treatment systems may be effected by several methods.

See Gross profile, page 22

Open Discussion on Nutrient Systems – Moderator to be announced

Sequencing Batch Reactor and Rotating Biological Contactor BARBARA RICH
The others—SBRs and RBCs: The La Pine Project has a rotating biological contactor and a sequencing batch reactor in the field test program for individual onsite sewage treatment systems. The goal of the program is to identify the systems with the best denitrifying processes. This presentation will review the systems and their performance. At least two years of performance data is included to demonstrate the systems' ability to meet the project's performance criteria of 10 mg/L _ BOD-5, TSS, and Total Nitrogen, and a two log reduction in fecal coliform and E. coli.

See Rich profile, above

High Performance Septic Tank Devices

Technical

Low Pressure Pipe Systems:
Evolution, Adaptation & Quality Control
BRIAN CORWIN
To ensure the successful use of Low Pressure Pipe (LPP) systems, a thorough understanding of their basic concepts is required and strict quality control measures must be implemented throughout the entire process. Williamson County (TN) has adapted their use for individual situations, and the specific conditions encountered in Middle Tennessee to dramatically reduce their overall failure rate.

Brian Corwin works for the Williamson County Department of Sewage Disposal Management in Franklin, TN, and is responsible for the review and approval of all alternative onsite wastewater system designs for the county. He has B.S. and M.S. degrees from the University of Tennessee in Agricultural Engineering, with a minor in Environmental Engineering; is active in the American Society of Agricultural Engineers (ASAE), and is currently President of TOWA and Secretary/Treasurer of the Tennessee Section of ASAE.

Comparing the Effectiveness of Drainfields and Seepage Pits for Treatment of Septic Tank Effluent in Medium-to-Coarse-Textured Soils
JASON FIELDS
Soil quality surrounding four drainfields and four seepage pits was evaluated to determine the relative effectiveness of these dispersal methods. Results indicate that TDS, total N, TOC and total coliform concentrations in soils decreased more rapidly in drainfields than in seepage pits with respect to distance from the injection point.

With a B.S. degree in Environmental Science in 2000 from Stephen F. Austin State University in Texas, Jason Fields is currently working on an M.S. degree in Soil, Water and Environmental Science at the University of Arizona. He has also worked as an intern at the USDA-Natural Resources Conservation Service.

Application of a Septic Tank Effluent Pump Sewer System in Tennessee
DAVID DINSE
This presentation focuses on the application of a Septic Tank Effluent Pump (STEP) Sewer System to eliminate polluted runoff and groundwater from 25-30 houses located in the Smoky Mountains of Tennessee. Project costs, funding and construction will be addressed.

David Dinse is a Project Manager in TVA's Public Power Institute and has been involved in a wide array of research projects including solar heating, the development and implementation of ground source heat pumps, heat pump water heaters, ventilation heat recovery system development, and solar day lighting using large diameter fiber optics with electric backup (Hybrid Lighting). Dinse has a B.S. in Civil Engineering from the University of Connecticut, and is a registered Professional Engineer in Tennessee and North Carolina.

Onsite System Failure Rates and Survivability Revisited
MICHAEL HOOVER
There have been few scientific studies of failure rates in the U.S. In this presentation, Dr. Hoover will summarize and discuss the results of published studies and the implications from those studies as well as the research gaps that future studies need to fill.

Dr. Mike Hoover teaches Soil Science at North Carolina State University in Raleigh.

The Trouble with Mottles—A Case Study in the Misidentification of Redoxomorphic Features in Relation to a Proposed Residential Subdivision, Upper Freehold Township, New Jersey
RANDY KERTES
This presentation addresses the reasons the redoximorphic features of a soil may not be a totally reliable indicator of the high water level.

Randy S. Kertes, a Certified Professional Geologist, has 17 years' experience in environmental consulting, specializing in the site assessments, environmental impacts statements, and soils and subsurface investigations relating the discharge of wastewater from large and small scale systems. He has a B.S. and M.S. in Geology from the University of Cincinnati, and is an adjunct professor at Rider University in the Dept. of Geological and Marine Sciences.

Plastic Media to the Rescue
GEORGE GARDEN
This session evaluates the addition of plastic media to recirculation tanks to enhance CBOD removal and denitrification, and the ability of recirculating sand filter systems to meet effluent requirements at double the design load at a TDOT Welcome Center.

George Garden is a Project Manager in Water Resources and Vice President at Barge Waggoner Sumner & Cannon, Inc. He has a B.E. in Chemical Engineering and an M.S. in Engineering Science (Environmental and Water Resources Engineering) from Vanderbilt University.

Reciprocating Constructed Wetlands for Treating High-Strength Anaerobic Lagoon Water
TERRY YOST
A novel reciprocating subsurface-flow constructed wetland, consisting of four cells totaling 3570 m2 (1.5 m deep), is treating anaerobic lagoon wastewater from a commercial-scale, confined, swine feeding operation. The ReCip® wetland system has been very effective in the removal of organic compounds, nitrogen, odor and fecal coliform bacteria.

Since joining TVA in 2000, Terry Yost has been very active in performing research related to constructed wetlands and their use in treating municipal, industrial, and agricultural wastewater. He has a B.S. degree in Chemistry from the University of Arkansas, and an M.S. in Chemistry from the University of Tennessee.

Guidelines For Drip Distribution
JAMES T. WATSON
Guidelines for use of drip distribution technology for wastewater developed over a 3-year period will be presented. The guidelines are the work of national manufacturers, engineers and other design professionals, and represent a standard for the design, performance, operation and maintenance of drip technology as it is currently applied for subsurface dispersal of wastewater.

Planning

Residential Design Flow Projections:
What Constitutes A Bedroom?
TREY CAVIN
Residential design flow projects for onsite wastewater systems are typically based upon the number of bedrooms contained within a dwelling. Yet many regulations do not contain clear guidelines or definitions as to what constitutes a bedroom. Williamson County (TN) is in the process of implementing quality control measurers regarding bedroom determinations to ensure that houses are being built as permitted.

Trey Cavin works for the Williamson County Department of Sewage Disposal Management in Franklin, TN, assisting in the review and approval of all alternative onsite wastewater system designs for the County. He has a B.S. degree from the University of Tennessee in Biosystems Engineering, with a minor in Environmental Engineering, and is active in the American Society of Agricultural Engineers (ASAE) and the Tennessee On-Site Wastewater Association (TOWA).

Projected and Measured Wastewater Flows for Westerly Road Church and Implications for Site Planning, Proposed Westerly Road Church, Princeton, NJ—A Case Study
RANDY KERTES
The water usage of a church was determined and used for planning another development.
See Kertes profile, page 24

In the Wake of a Flood: Humans as Part of a Watershed Ecosystem
PATRICIA MILLER
How humans use the land impacts largely upon how water flows off the land and into receiving steams and waterways. Floods are the events that point out how misuse of land contributes to loss of property and livelihoods.

Dr. Miller is an extension specialist for the University of West Virginia Cooperative Extension. She has a Ph.D. in Environmental Science and B.S. and M.S. degrees in Geology.

Cold Weather Insultation of Septic Tanks
and Other Infrastructure
CHRISTOPHER ENGLISH
The author presents tools for calculating thermal heat loss and insulation needs for buried infrastructure, including septic tanks. Once mastered, attendees can apply the same techniques to various types of underground plants, including valve vaults, piping and pump
stations.

Mr. English graduated from San Jose State University, CA, with a Bachelor of Science degree in Civil Engineering. He served six years as Park Engineer and Chief of Design and Engineering at Yosemite National Park, CA.

How Onsite Wastewater Reuse System Provided the Answer to an Economic Development Problem in an Ohio Community
HOWARD WINGERT
This presentation addresses the installation and operation of a STEP wastewater treatment system for a rural manufacturing center in Southwest Ohio, using a recirculating sand filter, ozone injection and chlorination to treat the effluent which is reused to flush toilet fixtures. Final discharge is in the form of drip irrigation.

Howard Wingert is president of Concrete Sealants, Inc.. He has a B.S. from Ohio State and a J.D. from the University of Dayton.

Get Ready For E-Government:
Regulating Onsite Systems Online
ANISH JANTRANIA
The Internet has changed the way we do business. Next it will change how we access government services, and how government regulates the service providers, moving towards an "open" process in which permit applications are processed and decisions are made for issuance or rejection of a permit for onsite systems. This presentation provides ideas, concepts, and suggestions for developing and implementing the new way of regulating onsite systems.
See Jantrania profile, page 22

Developing a Management Program for Onsite Systems in the La Pine National Demonstration Project
BARBARA RICH
This program required the development of a maintenance plan addressing numerous types of onsite systems, as well as educating and involving the public. This presentation discusses how these components were produced through a citizen-based consensus- building process.
See Rich profile, page 23

NRECA Buyer's Guide For Decentralized Wastewater Technologies
CHARLES MCENTYRE
Often, customers are confused by the myriad options available for onsite wastewater treatment systems. This presentation provides
participants with the factors to consider when choosing the best option for your project.

Charles McEntyre is a senior environmental engineer with nearly 30 years of experience in wastewater management and pollution prevention. He has a B.S in Biology from Vanderbilt University and an M.S. in Environmental Engineering from the University of Tennessee, and is a registered Professional Engineer and Certified Hazardous Materials Manager.

Quantifying Site-Scale Processes And Watershed-Scale Cumulative Effects Of Decentralized Wastewater Systems
ROBERT SIEGRIST
The presentation covers the literature data analysis, fundamental and applied experimental work, environmental monitoring, and site-scale and watershed-scale modeling studies completed during a 3-year project.

Dr. Siegrist is a Professor and Director of the Environmental Science & Engineering Division at the Colorado School of Mines, where he teaches and conducts

Planning, continued

research regarding decentralized wastewater systems, as well as risk assessment and remediation of contaminated land. Dr. Siegrist has published over 150 papers, is a registered Professional Engineer, a member of several national
societies, and serves as a technical advisor to government agencies and private industries in the U.S. and abroad.

Planning For Cost-Effective Onsite Wastewater Treatment

ROD FREDERICK

Unplanned, compartmentalized approaches for onsite wastewater treatment fail to consider cumulative water resource and pollutant impacts. Planning that integrates the entire range of water use, water resource, and wastewater treatment activities—centralized and decentralized—can guide infrastructure development, increase treatment performance, improve water quality, and promote efficiency.

Rod Frederick is an environmental engineer with the U.S. EPA Office of Wetlands, Oceans, and Watersheds (OWOW). He and
Robert Goo, an environmental protection specialist also with
U.S. EPA OWOW, lead agency efforts to address water quality impacts from urban runoff, decentralized wastewater facilities, and other nonpoint sources of pollution.

The Art of Negotiating with Private Landowners for Municipal Cluster Systems

MARY K. CLARK

This paper presents methods to improve public participation and negotiations with private landowners for developing municipal
cluster system sites.

Mary K. Clark is the Project Manager for the Warren Decentralized Wastewater Management Project at Stone Environmental Inc. of Montpelier, Vermont. She has a Bachelor of Science degree in Natural Resource Conservation, and over 20 years of onsite experience in Vermont as both a designer and regulator.

Using Resource Vulnerability Assessment to Set Water Quality Priorities: Colchester, Vermont's Strategic Water Quality Plan

CARL ETNIER

In a town where no one factor stands out as degrading water quality, a modified version of a resource vulnerability assessment has been used to prioritize actions which affect different factors differently in Colchester, Vermont.

Carl Etnier, Ph.D. (ABD), Norwegian Agricultural University,
has over ten years of decentralized wastewater experience His Ph.D. studies were in wastewater decision-making, and he has observed and helped numerous communities wrestling with wastewater decisions.

A Unique Process of Treating Septic Tank Sludge

ERIC VACHON

The brothers Vachon have developed a unique way of treating sewage sludge and will report on their method in this talk.

Eric Vachon, President of SNS Group, has developed

Design

The Business Aspects Of High Strength Designing

FRANK AGUIRRE

Designing a system to accommodate high-strength wastes requires special considerations that are not used in designing a residential system. This session presents the basics points to be considered while designing a high-strength treatment system.

Frank Aguirre operates a business designing and inspecting onsite wastewater systems in South/Central Texas. He has a Bachelor's Degree in Biology and a Master's Degree in Educational Psychology.

The Importance of Geology In Onsite Wastewater System Design In Colorado

EDWARD CHURCH

Onsite wastewater systems in the mountains of Colorado are challenging to design and install because of slope and limited soil conditions. In this project, geology is used to select appropriate designs, determine well separation distances in fractured-rock aquifers, and address slope stability issues.

Founder and Principal of Church & Associates, Inc., Ed Church received his B.S. in Geological Engineering at the Colorado School of Mines in 1968 and attended Graduate Studies Civil Engineering in Soil Mechanics at Oklahoma State University in 1975. He is a registered Professional Engineer in Colorado and Wyoming, and a registered Professional Geologist in Wyoming.

Ashford: The Little System That Couldn't

TRICIA ANGOLI

This paper presents the issues and problems associated with comparing two systems for design purposes, especially with meeting effluent nitrogen levels in new cluster systems.

Tricia Angoli worked for Yerkes Associates, Inc. as a design technician/civil engineer. She has Bachelor's and a Master's degrees in Civil Engineering.

Designing To Accommodate Failures

WILLIAM STUTH

Addressing the reasons athat septic systems fail, this session focuses on the solutions and how to incorporate specific recoverable
features into the design.

Bill Stuth has worked within the onsite industry since 1955 designing, installing and troubleshooting onsite systems. For the

Innovations

EPA's New Decentralized Wastewater Program and How It Affects You
JOYCE HUDSON AND STEVE HOGYE
The demands for better management of onsite and clustered (decentralized) wastewater treatment systems are increasing. US EPA's management models and voluntary guidelines offer a framework for managing systems at many scales and levels, and provide national benchmarks for assessing and improving management programs.

Joyce Hudson is a Senior Environmental Engineer with the U.S. EPA Headquarters' Office of Wastewater Management. She has a B.S. in Civil Engineering from Howard University.

Steve Hogye is the project officer for several U.S. EPA projects, including the operations of the National Small Flows Clearinghouse and the National Onsite Demonstration Project. He received both his B.S. degree in environmental sciences and M.S. in environmental planning from the University of Virginia.

Effluent Sampling Techniques For Residential Treatment Systems
JOSEPH BUSH
This presentation addresses the proper methods and equipment used to sample effluent from residential wastewater treatment systems.

Mr. Bush is the Product Distribution Manager for NORWECO. Since receiving an honorable discharge from the U.S. Navy in 1989, he has excelled in the sales field, as well as working for a financial services provider, bringing together a diverse group of talents and skills.

Treatment Of Organic Waste and Sewage Sludge by Vermicompost
KURUVILLA MATHEW
The use of earthworms to accelerate and improve the treatment of organic waste has been well documented in the literature. Based on natural systems, vermicomposting utilizes earthworms to actively engage in the decomposition of organic matter. The major research question being addressed is how suitable is a large-scale vermiculture system as a means of managing institutional organic waste?

Dr. Kuruvilla Mathew is the Director of UNEP/IETC Environmental Technology Centre at Murdoch University in W. Australia, with 40 years of experience in water and wastewater systems. He is the Chairman of the Specialist Group of International Water Association on Water and Wastewater Technologies and Management Stratagies for Developing Countries.

Clearing the Fog on Fats, Oils and Grease
JAMES J. NEWTON
Septic tanks and other onsite systems are not immune from the effects of fats, oils and greases (FOG). This presentation describes the efforts undertaken by the Kent County Dept. of Public Works to educate the public on their effects and how to prevent them through proper handling.

James J. Newton is an environmental engineer with over 25 years' experience and is Program Manager for Kent County, DE. He has a B.S. in Engineering Science, and an M.S. in Engineering Science and Civil Engineering from SUNY at Buffalo.

Guidance, Communication, Accountability & Recognition: An Installer Qualification Program
RALPH BENSON
An effective program is needed to support professional

Operations & Maintenance

Managing Operation and Maintenance
GRANT DENN AND TRISTAN BOUNDS
An integral component of onsite system management, maintenance is one of the major components of a successful onsite wastewater operation. This talk focuses on the management issues to take into consideration when planning for operations and maintenance.

Grant Denn is the manager of Orenco's Systems Engineering Dept. with special expertise in commercial systems and communiity solutions, designing and/or specificying equipment, and over 15 years of experience in the decentralized wastewater treatment industry. He has a B.S. in Mechanical Engineering from Oregon State University and has published articles at numerous conferences on this topic.

Evaluating Resort Wastewater Treatment Systems In Antigua
HARDLEY BLAKE
Wastewater treatment systems in Antigua are unregulated, but the tourism is dependent upon the environment. This presentation illustrates how the criteria that must be used to judge whether an onsite wastewater treatment plant is working to produce the best effluent.

Hardley Blake is the founder of Blake Realty, a real estate firm in Bronx, NY. He has a B.S. in Chemistry from the Pratt Institute and an M.S. from Pace University.

Operations and Maintenance Forum
GEORGE LOOMIS
This is an operations and maintenance forum that will involve the participation of several experts who will discuss issues about operation and maintenance and how they affect the life span of onsite systems.

George Loomis is a Research and Extension Soil Scientist in the Department of Natural Resources at the University of Rhode Island. He has conducted research and training, and has in the onsite wastewater treatment field for the last 16 years. He is Director of the Onsite

NOWRA : **DECENTRALIZED SYSTEMS**
The Changing World of Wastewater Treatment
12TH ANNUAL CONFERENCE & EXPOSITION

Exhibitors

SOLD OUT!!

It's a FULL HOUSE! The following companies and organizations are registered for NOWRA's 12th Annual Conference & Exhibition in Franklin, Tennessee. They're looking forward to seeing

A K Industries
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Concentric Enviro, Inc.
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Consolidated Treatment Systems Inc.
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Crane Pumps & Systems/Barnes Pumps
CREST Precast Inc.
Delta Environmental Products, Inc.
Decentralized Putting Green—compliments of Delta
Ecological Laboratories, Inc.
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Effluent Collection Supply, LLC
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Enviroquip, Inc.
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Hydromatic Pump Company
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MicroSepTec Inc.
Nat'l Ass'n of Wastewater Transporters (NAWT)
Nat'l Decentralized Water Resources Capacity Development Proj.
National Environmental Health Association
National Ground Water Association
National Onsite Wastewater Recycling Assoc.
National Precast Concrete Association
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SNS Group Inc.-Juggler
Sta-Rite Industries, Inc.
Synergy World
Tennessee Valley Authority
Tetra Tech, Inc.
The MESS Company, LLC
Topp Industries Inc.
Tuf-Tite, Inc.
U.S. Environmental Protection Agency
Water Environment Research Foundation
Waterloo Biofilter Systems Inc.
Wieser Concrete Products, Inc.
Xerxes Corporation
Zabel Environmental Technology
Zenon Environmental, Inc.
Zoeller Pump Company

September 15, 2003

NOTICE OF THE 2003 ANNUAL NOWRA MEMBERSHIP MEETING

In accordance with Article III, Section 7, of the NOWRA ByLaws, all members with current dues paid, were formally notified of the NOWRA Annual Membership Meeting by letters mailed first class on September 22, 2003. This meeting is scheduled to occur:

Wednesday, November 5, 2003, at 1:00 p.m.
Conference Exposition Hall, Champion Ballroom
Franklin Marriott Cool Spring Conference Center
Franklin, Tennessee

All members are urged to attend and participate in this meeting. This notice was also placed on the NOWRA Website (www.nowra.org) with additional and updated information as it becomes available and in the September and October issues of the Onsite Journal.

1. Call to Order – Tim Frank, President
2. Roll Call will not occur. Instead, a master membership list will be available to ascertain voting paid members.
3. Reading of Meeting Notice & the September 18, 2002 Business Meeting Minutes
   Secretary – A. Thomas Ferrero, Jr.
4. Officers Reports:
   President – Tim Frank
   Treasurer – A. Thomas Ferrero, Jr.
   Executive Director – Linda Hanifin Bonner
5. Committee Reports
6. Business Items:
   Directors Election Results
   Association Governance Task Force
   2004 Membership Program
   2004 Education Program
7. Open Member Discussion
8. Adjournment

NOWRA MODEL PERFORMANCE CODE SPONSORSHIP PROGRAM

The work to produce the Model Performance Code is currently supported through private donors, and limited EPA and NDWRDCP funding. In 2004, this workload will increase and additional financial resources are needed. NOWRA members can make a special donation to the MODEL PERFORMANCE CODE, by following the easy steps listed below.

1. Completely fill in the information on the form below, and sign your name representing the donor organization.
2. Identify the amount to be donated, and designate it to "The Model Performance Code Education Fund."
3. Place the information into an envelope and mail it to NOWRA, P.O. Box 1270, Edgewater, MD 21037-7270.

Name _____

Organization (if applicable) _____

Address _____

City_____State_____ Zip

Amount to be donated:_____ Payment Terms:_____ enclosed check _____ request invoice _____ credit card

☐ Visa ☐ MasterCard ☐ Discover Card

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Credit Card Number Expiration Date

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Name on Card Signature (required)

Other organization contacts_____

NOWRA 2004
EDUCATION & TRAINING PROGRAM

NOWRA's 2004 Education and Training Programs are developed and conducted exclusively by credentialed educators, researchers and leaders who are recognized for their national expertise and skills within the onsite industry. In addition, industry members representing a significant group of manufac - turers and distributors also provide additional technical expertise and answer ques - tions about the operation of certain equipment. Because of these credentials, certificates of course completion issued to NOWRA program participants are accepted and can be applied to the professional continuing education require - ments in various states. NOWRA's programs are offered either as educational sessions or specialty work - shops. They are adaptable to meet the legal and code requirements of the various states and of the technologies that work within specific geographic areas.

These courses can be offered in conjunction with state programs, local events, or as a special program. CEUs are given in all courses. Contact the NOWRA Headquarters office to schedule a program for your group: Toll Free, 1-800-966-2942 or e-mail nowra@hanifin.com.

NOWRA 2004 Program Courses

A New Paradigm for Onsite Systems—Integrating Planning and Management into Local and Regional Planning

This comprehensive, one-day session focuses on one of the leading and emerging activities in the onsite industry—how to manage the newer technologies for onsite systems, as prescribed by the EPA guidelines. It dispels the aged views and myths about older septic tanks with vital information on the highly successful technology used in the newer onsite system. Most of all, this session answers the essential questions about how to effectively manage large numbers of onsite treatment systems and thus achieve the overall goal of water quality protection.

Onsite Cluster Systems and Technology—The Infrastructure Solution for Small and Rural Communities and Sensitive Environmental Sites

This workshop focuses on one of the most important approaches to the future of communities and the wastewater infrastructure. Participants gain a comprehensive introduction of cluster systems and their technology—their relationship to gravity systems, design and management considerations. Using the EPA Design Manual, cluster system technology and its applications illustrate their effectiveness in sensitive environmental conditions. The course addresses the core areas of regulating, managing and permitting, and owning onsite cluster systems, through the presentation of case studies. Special attention is given to understanding how to integrate onsite cluster systems with land-use planning, "smart growth principles" and desired open space.

Drip Distribution Systems for Wastewater Recycling

A "hands-on" education and training forum, this program is designed to advance knowledge about the value of onsite drip dispersal systems and water quality protection, and the needed expertise to make them work! Participants learn how drip dispersal systems solve community and individual needs for effective wastewater treatment facilities located in outlying and sensitive environmental areas (endangered and threatened streams where point discharges are unavailable.) Onsite systems also provide affordable answers.

Developers, Real Estate Industry Education Workshop

This unique half- or one-day session provides an excellent overview for the building and realty industry on the many topics relating to onsite wastewater treatment, and why decentralized systems provide the solutions to tomorrow's wastewater infrastructure needs. Concise presentations by NOWRA experts explain soil absorption systems and the highly important advances achieved over the past decade in both technology and management. This session covers everything from the basics of onsite wastewater treatment, such as the traditional septic tank, through the most advanced mound and drip irrigation systems, to the use of clusters for communities and sensitive environmental areas. However, since most onsite systems today use soils as the final method of dispersal, and much of the cost of the system depends on the soils, this topic receives special attention.

From the perspective of property owners, and sellers, participants are informed about the process of an onsite wastewater system inspection and how they are evaluated for loan transactions. The result of the time spent in this session is a significantly broader understanding about what to expect from the operation and performance of onsite systems...and especially, how to avoid costly surprises.

ONSITE SYSTEMS—A to Z

A Special Education Course for Practitioners, Public Officials, and The Building and Realty Industries

The ***Onsite Systems—A to Z*** is a two-day course originally developed as a basic presentation during the 2000 NOWRA Annual Conference. Because of overwhelming participation and demand, this course is now offered as a distinct program at every annual conference, and in response to special requests. ***Onsite System Basics*** is a one-day course that provides a condensed version of the A to Z course.

Both ***Onsite Systems—A to Z*** and ***Onsite System Basics*** provide a fundamental education for a broad audience. They are structured for persons new to the onsite industry who need to gain a comprehension of the components in this treatment process; for individuals responsible for making regulations affecting onsite systems; and even for those professionals who have been working in the business for a while. Attendees hear national experts speak and learn more about onsite treatment processes than from other programs. Session topics (described below) throughout the two-day course present valuable information about the essential areas to be addressed in onsite systems, with CEUs given to attendees.

History of Wastewater Treatment and Onsite Systems traces the history of wastewater treatment over the centuries, and humanity's struggle with its wastes, leading to incredible innovations.

Chemistry of Water and Wastewater describes the nature of the water molecule and its ability to dissolve, suspend and move other things is critical to our understanding of wastewater treatment.

Microbiology of Wastewater Treatment presents how the process of turning wastewater into clean water involves the participation of many types of microorganisms.

Soils and Site Selection identifies how most onsite systems send effluent from the septic tank into the local soils for treatment, and the importance of understanding the structure and function of soils.

Septic Tanks and Pretreatment Methods are themselves an interesting topic, as the sizes and shapes of the best ones have been debated for over a hundred years—and that debate rages on!

Advanced Methods of Onsite Wastewater Treatment features the principles of advanced pretreatment, together with topics including ATUs, media, sand, peat, and textile filters.

Soil-based Treatment Systems are those with which we are most familiar and the ones that get the most attention because of "failure." Various types of systems and the mechanisms for treatment efficiency are presented.

Hydraulics and Effluent Distribution explains how gravity-based and pump-based hydraulics work to get the effluent moved to different places for treatment, and methods for distributing effluent into a soil.

Installation of an Onsite System From the pipes to the tanks to the fields, every step in the installation procedure is critical for the long-term success and life of the system.

Operations and Maintenance is a topic that is becoming increasingly more important across the U.S. as regulators address issues affecting non-point sources of pollution.

Land Use and Zoning In many regions, septic system regulations have served as the *de facto* land use plan. With the advent of advanced treatment system and performance-based codes, the importance of planning and zoning as a land-use method has become more obvious. Examples of good and bad land-use planning will be given and success stories will be told.

ONSITE SYSTEM BASICS

An Introduction to 21st Century Decentralized Wastewater Treatment Technology and Systems

A one-day course about the technology available for treatment, collection and management of onsite systems, featuring the following topics:

21st Century Onsite Systems: Progressive Collection and Treatment Technology— An Overview of STEP, STEG, Recirculating Filters, ATUs, SBRs, Textile Filters, Soil Absorption, Drip Irrigation

Cost Considerations and Comparisons Defining Onsite Treatment Components— Chemistry and Microbiology; Wastewater Sources—quantity and quality and separation; Primary and Secondary Treatment

Soils, Site Characteristics & Land Use— Property assessment in the siting, sizing and design of onsite systems

Managing Onsite Systems in the 21st Century— Establishing a responsible entity and cost efficiencies

An 8-hr. Continuing Education Certificate is issued to all participants.

continued

CPR FOR ONSITE SYSTEMS

This unique course addresses the areas affecting failing conventional septic and newer onsite systems. It provides an understanding of how to begin to solve the problems being experienced by owners. Participants learn first-hand, from "experts in the field," the reasons systems fail and steps needed to correct and revive them. NOWRA's presenters bring a significant range of skillls in dealing with system failures, troubleshooting and problem-solving. In addition, topics such as diagnosing conditions of septic tanks; the use of ATUs (aerobic treatment units) and problem-solving strategies; sand filters and soil-based systems and control panels.

Career Opportunity—WASTEWATER & WATER ENGINEER

Job Title: Mid-Level Engineer

North American Wetland Engineering is a vibrant, forward-looking, growing company in search of high-energy individuals to join our team. We are currently looking for mid-level engineers with design and project management experience in general municipal and residential development engineering, including wastewater and/or water systems.

Essential Duties

- Design and obtain regulatory approval of wastewater/water systems
- Perform client management, project management and fiscal management roles on assigned projects
- Prepare engineering reports, environmental compliance reports, monitoring plans and other technical documents
- Prepare contract documents for bidding and/or design-build
- Conduct and assist in soils investigations, site mapping and other site evaluation tasks
- Prepare design drawings, maps and other graphical documents using CAD and GIS (Arc View)
- Perform construction management and observation duties
- Actively market to existing and prospective clients

Qualifications

- Minimum of 5 years of related experience in civil, geotechnical, sanitary or environmental engineering
- Bachelor's degree in Civil Engineering or related field
- Master's degree in Civil, Environmental or Sanitary Engineering a plus
- Minnesota licensed Professional Engineer or capable of obtaining license within 6 months of hire
- Demonstrated project management skills
- Experience in designing mid- to small-scale municipal and residential water and wastewater systems
- Positive client relations experience
- Ability to adjust communication levels and methods for various audiences
- Strong technical writing skills; publication experience/ skill desired
- Innovative and independent thinking skills

North American Wetland Engineering

NAWE is an ecological engineering company located in Forest Lake, Minnesota. We specialize in innovative water and wastewater solutions for industry, residential developments, small communities, and single family homes. And, although the primary mission of NAWE is to assist business associates with their water, wastewater and engineering needs, the company's underlying foundation is rooted in a respect for the environment. Because of this, every NAWE project is designed to integrate sustainable ecological principles with sound engineering.

NAWE's expertise in the design, construction, and operation of engineered wetland treatment systems is internationally recognized. We have been involved in over 150 wastewater projects in eight states and four foreign countries—many of which use wetland treatment technologies developed and patented by our company. NAWE also provides specialty services in nonpoint source pollution control, wetland mitigation banking and environmental compliance.

If you are looking for a rewarding and challenging career with a growing, cutting-edge firm, please forward your resume or call us at:

North American Wetland Engineering

Attn: Judy Lissick, Director of Operations

20 North Lake Street, Suite 210

Forest Lake, MN 55025

(651) 255-5044 (Direct)

(651) 255-5050 (Company)

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jlissick@nawe-pa.com

2004 CALL FOR PAPERS

NOWRA's 13th Annual Technical Education Conference and Exposition

NOWRA welcomes all industry representatives to submit proposals for papers to be presented at the Annual Technical Education Conference in Albuquerque, N.M. All papers accepted will be included in the Proceedings distributed to conference participants and be available for sale. Individuals making presentations ***must provide a paper for the proceedings.*** Alternate selections for the respective sessions will also be identified. Education session topics include, but are not limited to the areas listed here.

Proposed papers are given consideration only if the materials requested in this form are delivered complete and in a timely way. E-mailed or faxed submissions are acceptable, with details provided in the following format ***and produced in a Microsoft Word or WordPerfect document.***

E-mail to: nowra@hanifin.com; **Fax to:** 410-798-5741;
Mail to: NOWRA, P.O. 1270, Edgewater, MD 21037
DEADLINE: Abstracts cannot be accepted after March 30, 2003.

Please complete the sections below and on the reverse side.

Topics include, but are not limited to:

- Nutrient – projects and research
- Planning
- System and Operations Design
- Innovative Programs
- Regulatory and Legislative
- Technical Systems
- Operations and Maintenance
- Management
- Communications & Public Information
- Other Areas

This form is available for download from NOWRA's website: www.nowra.org

Proposed Paper Title

Relevant Topic Area **Length of Presentation (25 minutes or 50 minutes)**

Presenter's Name

Position and Organization

Street Address

City **State/Province** **Zip/Postal Code** **Country**

Phone **Fax** **Email**

Co-authors

continued on reverse

Biographical Information of Presenter (Not a detailed résumé.)

Education:

Relevant details affecting your work within the onsite industry:

Presentation Proposal Section

Short Abstract: Condense the abstract to a 3-4 sentence statement. This brief statement is used in program promotions and in fulfilling CEU credit requirements from various states.

Regular Abstract: The abstract should provide enough information for the Program Committee to determine how the presentation fits into the Program. Describe the information to be presented, the status of the work, the insights gained in the remaining space below. This abstract should be no more than 200 words. Please do not submit a finished presentation or a PowerPoint presentation. Keep it simple.

NOWRA Onsite Journal 2004 Advertising

NOWRA is continuing its improvements in our main publication to our members—the Onsite Journal—providing benefits to both our advertisers and our membership. We are advertising NOWRA as well as all those products for which vendors and manufactures place ads. The Onsite Journal now reaches regulators throughout the U.S. and is placed on our website—even before it is mailed. Our goal in 2004 is to reach local public officials making decisions on the wastewater infrastructure. The 2004 publication themes are listed below. You are encouraged to submit articles of interest and new product promotions. This has had a positive effect with

Issue	Theme	Deadline
January/February 2003	2003 Annual Report/2004 State Programs & Legislation Affecting the Industry	December 15,
March/April	Product and Services Guide	February 1, 2004
May/June 2004	Treatment Technology; Maintenance & Operations; Preliminary Conference Promotion & Registration	April 1,
July/August	Conference Registration/Model Code Update; Industry Communications & Management	June 1, 2004
September/October	Conference Program	August 15, 2004

2004 ONSITE JOURNAL ADVERTISING RATES

Page Size	✔ Single Issue	✔ Annual (6 issues)	Format
BLACK & WHITE			
Full Page	☐ $1,050.00	☐ $5,800.00	Black & White
Half Page	☐ $750.00	☐ $4,250.00	Black & White
Quarter Page	☐ $450.00	☐ $2,650.00	Black & White
Business Card	☐ $150.00	☐ $840.00	Black & White
Classified Ad	☐ $50.00	☐ $275.00	Black & White
COLOR			
Full Page Inside Front Cover	☐ $1,550.00	☐ $8,850.00	Full Color
Half Page Inside Front Cover	☐ $875.00	☐ $4,750.00	Full Color
Half Page Outside Back Cover	■ $1,050.00	■ $5,800.00 (taken)	Full Color
Half Page Inside Back Cover	☐ $875.00	☐ $4,750.00	Full Color
Half Page	☐ $825.00	☐ $4,750.00	Full Color
Quarter Page	☐ $575.00	☐ $3,300.00	Full Color
Full Page Inside Back Cover	☐ $1,550.00	☐ $8,850.00	Full Color

All NOWRA publications are produced on a Macintosh G4 system using QuarkXpress. Preference is to receive ads via e-mail as eps or press-optimized pdf files. Hard copy is also accepted, but caution that the quality of a scanned ad may not be as crisp as the original. Questions on the specifics of an ad should be addressed to Susan Rutter, NOWRA publications designer, at 757-

ASK THE EXPERT

Q: ***Dear Sir:***
Please tell me if I need a special permit to trans - port grease trap septage? Thank you.

A The Pennsylvania Department of Environmental Protection (PaDEP) does not require any type of registration or permit for haulers transporting grease trap wastes. They do require a registration for haulers who put septage into their trucks and grease trap wastes is clearly excluded from the definition of septage in Pennsylvania. As sophisticated as PaDEP is, they have been very casual about state registrations. If you only do grease traps you do not need to be registered at the Commonwealth level.

I cannot speak for every county, township, borough, city, or other municipal entity that you may drive through. You need to check on the regulations in each municipal entity that your path of travel takes you. Some may require registration (and a fee) even if you are only traveling through the municipality, others only if you work in the municipality. The county health departments should be able to help you gather this information.

Tom Ferrero, *NOWRA Secretary-Treasurer*
CFO, United Wastewater, Inc.

Q: ***Dear Sir:***
I was told by someone that I could plant a low (under 8-10 inch) groundcover on my sand mound. Is that true? What do you recommend? This is in the woods and I don't want it to look like a putting green. Thanks.

Cathy Gelston

A Dear Ms. Gelston,

You can place a ground level cover on the mound. I would not put a deep rooted plant on it—especially on the top, as we don't want the roots to plug the orifices in the pressure distribution system. We do have a publication on Siting and Landscaping mound systems that we can send you if you would like it. Unfortunately it is not on the web. The University of Minnesota has a web-based publication on landscaping onsite systems. It can be found in their publication list at http://septic.coafes.umn.edu.

Jim Converse, *NOWRA Board of Directors*
Professor, Biological Systems Engineering,
University of Wisconsin-Madison

2003-2004 Calendar

November 24-25, 2003

7th Annual Delaware Wastewater Recycling Association (DOWRA) Conference
Dover Downs Hotel and Conference Center, Dover, DE
Additional information contact David Schepens, Department of National Resources – 302-739-4761

January 7 & 8, 2004

5th Annual OOWA/OLICA Convention & Trade Show
Akron, Ohio
For more information contact OOWA Program Chair, Tom Grigsby, at 614-644-8663 or tgrigsby@gw.odh.state.oh.us

March 8 & 9, 2004

Ontario Onsite Wastewater Associaton's 5th Annual Conference and Exhibition
Crown Plaza Hotel, Ottawa, Ontario, Canada.

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