Winter 2007

ONSITE journal

NEWS FOR THE DECENTRALIZED WASTEWATER INDUSTRY

Vol. 16 No. 1

An Industry Focused on Water Quality & Change

Featuring this Month:

- **Perspective on Nitrogen**
- **Listening & Understanding Members' Needs**
- **2008 Conference Announcement**

NOWRA
National Onsite Wastewater Recycling Association

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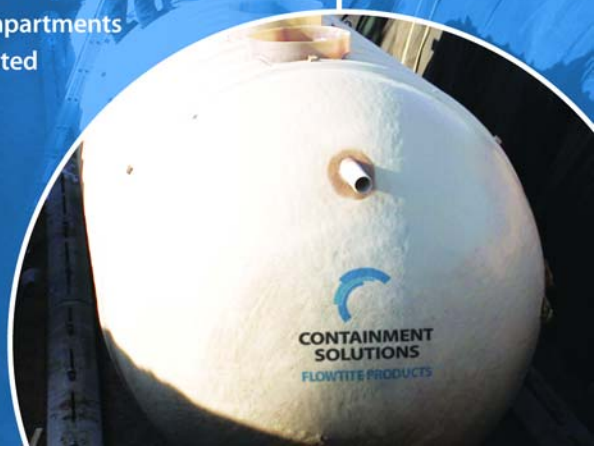

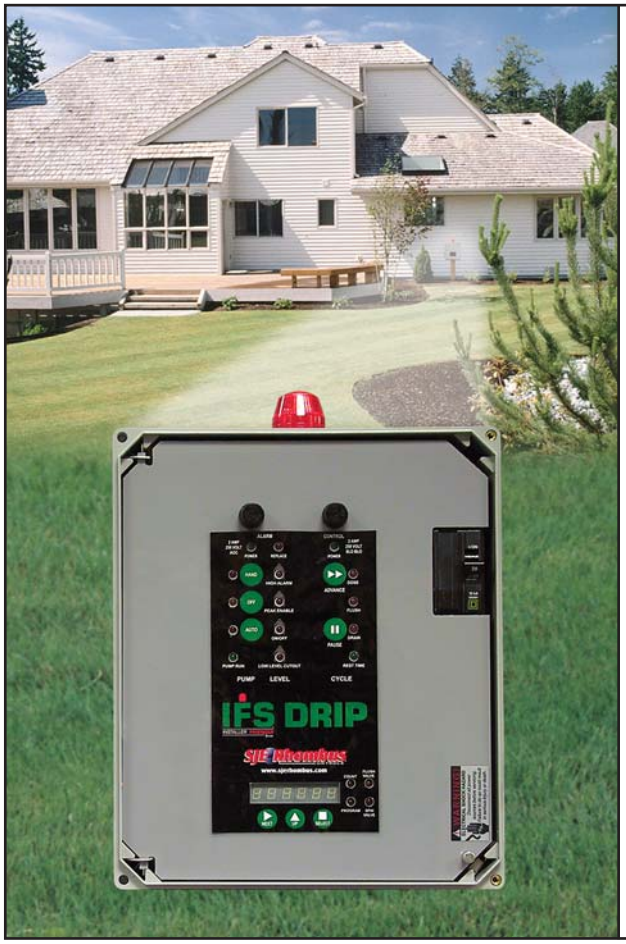

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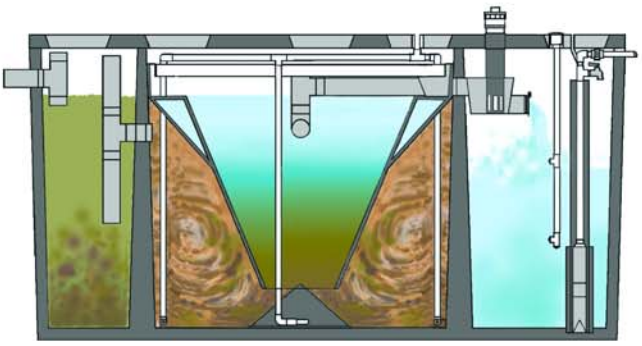

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ONSITE journal

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National Onsite Wastewater Recycling Association, Inc. Vol. 16, No. 1

ADVERTISERS' INDEX

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www.septiclocator.com
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Covered by patent numbers 5,492,635; 5,480,561; 5,360,556; 6,540,920; 5,531,894; D461,870; D445,476

Listening and understanding member needs

A Changing Industry = Effective Communication

The environmental world of water and wastewater is changing around us—and the decentralized wastewater industry is a player in the changing process. The evidence of this message has been clearly brought home with the thought provoking ideas and activities presented and discussed at the NOWRA 16th Annual Conference and International Program in Baltimore, MD. Never before has a NOWRA program produced such a diverse range of topics from which to choose to learn about practices, procedures for decentralized systems that are occurring world-wide—and even close at home.

The fact that NOWRA facilitated a conference in which other methods of planning, and approaches to working within a new level for decentralized systems has occurred, presents another message. It is one that NOWRA has to be a leader in furthering the knowledge as to how they are critical to a sustainable future for our children and grandchildren. The 2007 conference program developed by NOWRA's education and the WERF decentralized committee is one that will always be remembered as a first. Under the leadership of Sara Christopherson and Valerie Nelson, each of whom guided the two parallel programs into fruition, a significant appreciation of their dedication and hard work needs to occur.

The significance of the messages heard by conference participants is also that they are occurring at an Association's program, which has been viewed by many working in some level of the many water resources professions, as an organization with a narrow perspective on issues relating to watershed planning or even sustainable development. In plain language—there are a lot of professional groups, public officials, realtors, developers whose basic and limited knowledge about NOWRA and its work—is that the decentralized industry is still stuck in the traditional box of septic systems. This program sends a public message about the dramatic change in this thought process.

This message is being received in other situations, through presentations are made to new organizations. When individuals learn that this is an industry with significant scientific technology and planning—who are savvy about the integration of water resources—and of the technical advancements made to change the way septic systems protect and enhance water quality—their perspective is broadened. It is as though they realized, there's a new side of this box!

This reaction was clearly evident during a presentation made before the "Water and Wastewater Committee" of the National Association of Utility Commissioners and Regulators, in Washington, D.C. To a standing room crowd of nearly 100 people—and, as the last speaker on the agenda—at 4:15 p.m., I was amazed at the interest of this group in learning about NOWRA, what its members do and where we fit into this whole arena of regulation. Several commissioners and staff members later spoke with me about issues occurring in their states and how their knowledge was limited in working with this topic. They were gratified to learn that there was an organization of professionals to whom they could turn to for advice. And if there was one objective of my presentation that I was going to achieve—it was to let these commissioners and their staff know that NOWRA's leaders are available for consultation and discussion when they have questions about utility approaches and regulatory issues in their states—that affect the decentralized industry.

But there is another side to this message about this particular organization. There are NOWRA members very concerned that the approach advocated by EPA to manage decentralized systems will result in utilities forcing them out of business. These are legitimate concerns and threats because this industry is very involved in the changing environment. NOWRA's leaders want to send the message to assure its members that these concerns are heard. This situation further poses another question— if utilities are interested in working in the decentralized industry, then what should NOWRA's position and role become as an advocate for its members and at the same time ensuring that a mechanism is in place requiring that systems are managed?

At this time, the approach being pursued is that those seeking knowledge and information about decentralized systems should be aware that NOWRA is a resource to which organizations and businesses can turn to for technical resources. It will be up to the NOWRA membership to provide input to its leaders on other approaches. The member survey, sponsored by the NOWRA State Leaders Committee, is one way that NOWRA members can let their association's leaders know their opinions and expectations, and how future positions should be formulated. A copy of this survey is in this OSJ and on the NOWRA website—get hold of it, and get the information into the NOWRA office as soon as possible.

Managing change in an organization, an industry, or even an environment needs to focus on a core value and principle—communication. The communication must be "two-way" and not one-sided. The dialogue is one of respecting each others differences and working towards productive solutions.

NOWRA's leaders need to hear from you—what is important to your values as an industry member, and of future activities and positions that need to occur on behalf of NOWRA's members.

—Linda Hanifin Bonner
NOWRA Executive Director

MARK YOUR CALENDAR!

December 2007

Las Vegas, Nevada

Schedule of Events

— DAY 1 —

Training Sessions — 8 am to 5 pm
Breaks throughout the day in the Exhibit Hall and breaks for lunch

Opening Reception — Exhibition Hall Opens at 5 pm
Meet and greet with other attendees and the exhibitors

— DAY 2 —

Training Sessions — 8 am to 5 pm
Breaks throughout the day in the Exhibit Hall and breaks for lunch

Networking Social — Exhibition Hall Opens at 5 pm

— DAY 3 —

The 2007 INSTALLER ACADEMY will include:

- 3 days of technical sessions with CEUs featuring:
  - A to Z of Onsite Wastewater Treatment
  - Installation of conventional and non-conventional systems
  - Design and installation
- Business and financial management sessions
- Practical skills—e.g., OSHA standards, etc.
- Sessions with manufacturer training on products

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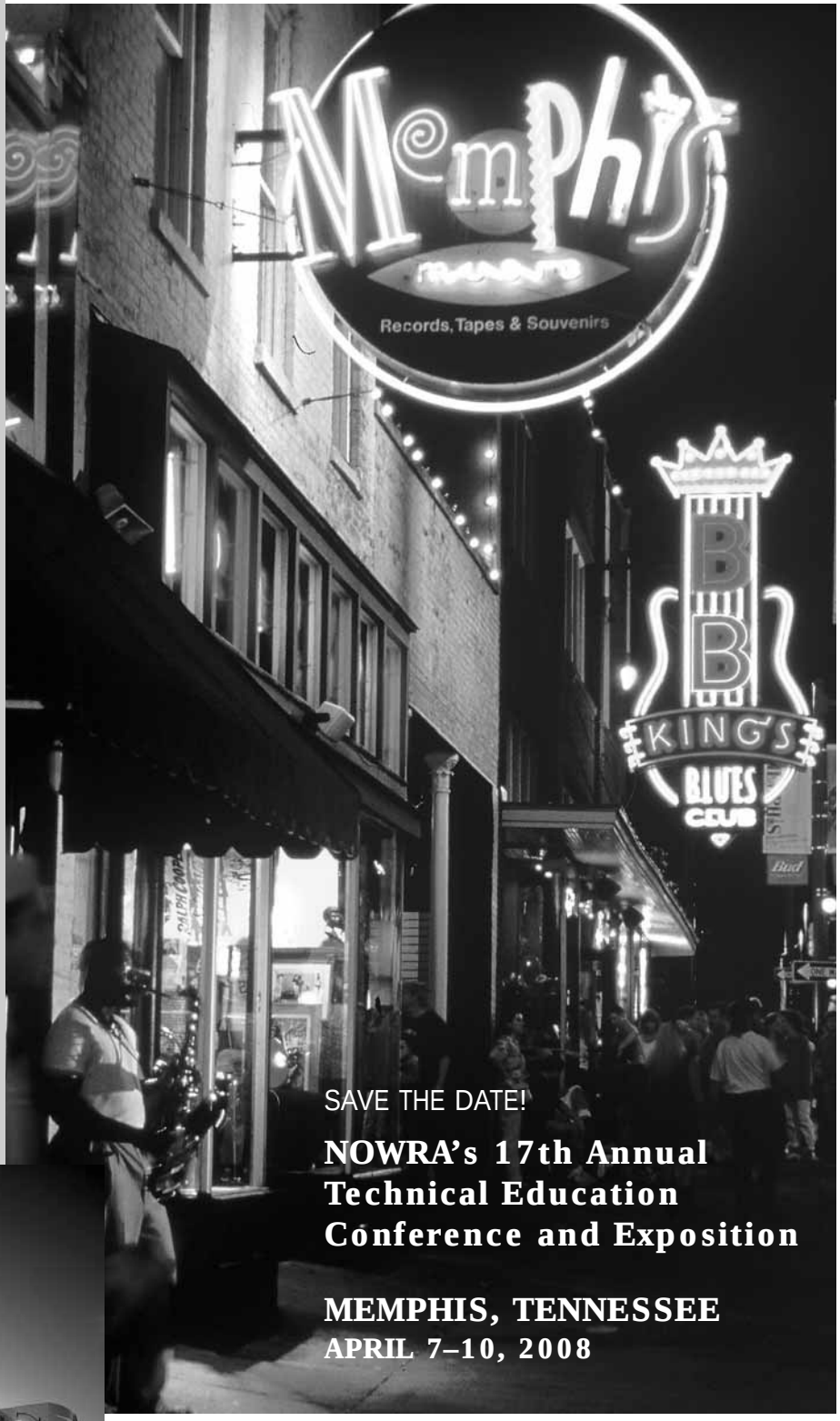
NOWRA's 2008 Technical Education Conference and Exposition

Memphis Cook Convention Center Memphis, Tennessee

April 7–10, 2008

Join us in 2008 in Memphis, Tennessee, for NOWRA's premier conference—the only place where you can receive the latest education on research, regulations, policy, experience and practice in the onsite wastewater industry!

In 2008, NOWRA will hold is program in a one-of-a-kind Exposition Hall that provides invaluable networking and educational opportunities. Here, you can view the latest technologies in onsite wastewater treatment, and meet the designers and installers who bring these technologies to you!



SAVE THE DATE!

NOWRA's 17th Annual Technical Education Conference and Exposition

MEMPHIS, TENNESSEE
APRIL 7–10, 2008

Photos courtesy of the Memphis Convention & Visitors Bureau.

2007
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A special Thank You to the 2007 NOWRA Gold, Silver, Bronze, and Loyal Supporter Business Benefit Program Members. We greatly appreciate your support and ongoing commitment.

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Geoflow, Inc. • Hoot Systems, Inc. • Infiltrator Systems, Inc.
Jet Inc. • Netafim USA • Orenco • Premier Tech Environment
Ring Industrial Group, LP • Zoeller Pump Company

Silver

(Annual Fee $3,500)

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Salcor Inc. • SJE-Rhombus Controls • Xerxes Corporation

Bronze

(Annual Fee $2,000)

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Norweco, Inc. • Waterloo Biofilter Systems Inc.

Loyal Supporter

(Annual Fee $350)

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Gast Manufacturing • Quanics, Inc.

If you would like to be added to this prestigious list of businesses, please contact the NOWRA office or visit the website—www.nowra.org.

NOWRA/EPA Kick off First Model Code Regulator Training Workshop

NOWRA IN ACTION

NOWRA's first regulator workshop providing education and training on the completed model code documents got off to a great start in Lexington, KY, just prior to the KOWA annual conference. The workshop was attended by 22 persons, only 4 of whom were not regulators. Workshop leaders Dr. Richard Otis, P.E., project manager; Tony Smithson, Model Code Committee Chairman; and Mark Hooks, Model Code Committee member provided the content of the day long session. Topics covered included a description and history of the development of the NOWRA model code and how it can be used to reform state and local programs; and how to get started in changing current codes that are not suitable for today's systems. The group also gained insights from the "lessons learned" discussion with Mark Hooks, also a Florida regulator.

Also participating in the session were Linda Hanifin Bonner, NOWRA Executive Director, Ron Suchecki, Model Code Committee and former Board member.

Participants received notebooks that included a summary of responses to a preliminary questionnaire, copies of presenters powerpoint presentations, and a pre-edited version of the model code framework, evaluation matrices and appendices. Each attendee will receive a CD with a complete and edited copy of the model code documents, once these documents have completed the editing process. A new website—www.modelcode.org—has been established where ongoing topics and issues can be addressed as more states become involved in this process. Currently, workshop items are already posted on the model code website.

Following the morning presentations, discussions and lunch, workshop participants were then divided into three groups; each being assigned a topic and asked to develop ideas towards a resolution or solution, and then report out the findings. Group one focused in the issues affecting the acceptance of policy officials, group two addressed strategies to work with outside interests; and group three explored the roles and responsibilities of regulators and policy officials in changing codes.

Following this work the group also engaged in a larger discussion forum – with a lot of agreement that the smaller groups had stimulated the thought process – noting, "we need to assess our own ideas." One point driven home in the session is that , "Regulators who are enforcing the code – should not be writing the code – and in order to address this issues, there needs to be a stakeholders group and the regulator is part of it." Jean Caudill (OH DEH) (also former Model Code Committee Vice Chair and lead author on the Guidance Document) cited her experiences over the past two years in having gone through the stakeholder process for changing the Ohio State code, and has also introduced the conflict of interest issue. She also reported her belief that regulators need guidance in how to make those steps work?

While providing guidance and information is the focus of the Model Code Workshops, even more important are the identified learning needs that were discussed by workshop participants:

- Understanding how to use codes to keep pace with growth & infrastructure needs
- Getting political support—how to get a champion to get codes changed
- Deriving a better application to "cycling" of codes – what is the best way to know how to get things "in" and taken "out
- Integrating performance with prescriptive codes
- Simplifying the process for developing or changing codes
- What is the best mechanism to get codes established that respond more effectively to new technologies
- Learning how to apply the model code framework
- Developing uniform standards for testing performance of systems
- INTERPRETATIONS – how to address the multiple perspectives of groups, policy officials and even customers about decentralized systems
- How to address existing conflicts that exist within state and county perspectives/philosophies and direction
- Identifying an approach to get older systems into compliance with new codes
- Establishing a mechanism ensuring that decentralized systems are affordable
- Learning how others incorporate performance base codes into regulations
- Understanding where and how the different applications fit into the process

"What could we have omitted or done much better?"

In concluding the session, most participants gave the workshop high praise, many stating their own learnings about the importance "changing roles" of the regulator. They believe that providing more examples of how other groups are working –the hoops they have to jump through; the pros and cons – in case studies would be invaluable.

The next model code workshop is scheduled to occur Sunday, March 11, 2007, prior to the opening of the NOWRA 17th Annual Conference. NOWRA is still searching for two more locations for workshops 3 and 4. Interested groups should contact the NOWRA office.

See separate application and information article. Also be certain to check the Model Code Website for the latest updates and information. The newly edited model code documents are now available at www.model.org.

NOWRA IN ACTION

New Websites for the Decentralized Water Industry

Visit these 5 websites—providing information about the decentralized water industry.

www.nowra.org
www.septiclocator.com
www.modelcode.org
www.waterforalllife.org
www.epapartners.com

The work on NOWRA's websites occurring over the winter months, under the direction and leadership of Ron Suchecki (NOWRA Website Chair) and the office staff has produced tremendous results – and at an impressive cost savings to NOWRA. The most important goal of this effort is to ensure that systems are in place for effective communication – and organization of the information to be conveyed to NOWRA members and the public at large. It is envisioned that NOWRA's website will be the "*communications hub for the decentralized water industry*." With these new systems in place, and a marketing strategy underway, NOWRA is positioning to respond to the ongoing need for education, questions on industry issues, and being a vital technical resource—and in the words of the 2005 mission—to be the "*go to organization for decentralized systems.*" Later this spring, two additional sites will be in place – the NOWRA Education and Research Foundation, and NOWRA Institutes of Learning.

An Activity Snapshot

In November 2005, NOWRA embarked upon work to create the "Septic Locator" and establish a more efficient membership administrative management system. Both of these systems are linked – which meant that the information in the septic locator has to come from the membership database. Since NOWRA also needed a more efficient method to have both the states and individual members update the information or member profiles, with funding allocated in 2006, the new membership management system was created, demonstrated to the State Leaders at their March 2006 meeting in Denver, CO, and launched in April. During May and June, training of state leaders occurred on steps required to update the system. Throughout the year, ongoing adjustments were also being made to the *SepticLocator* to improve its performance; and additional funding used for a temporary fix to the existing online registration system.

SepticLocator.com was created to help the public and potential clients locate NOWRA and State member's products and services. Modeled from the Home Depot and YellowPage programs, the SepticLocator is a custom designed program, in order to provide for future expansions that basic software packages do not offer. The GOAL of the NOWRA SepticLocator is to become the greatest leading national resource for system owners, developers and policy officials to find competent practitioners, services and products in the septic and onsite industry.

Accomplishing this goal, however, requires insuring that this information is located in numerous sources. States and NOWRA businesses should have a link to the Septic Locator on their websites – as it also demonstrates to your members that this is a benefit for them both professionally and economically. The NOWRA office will work with you to accomplish this task if it has not occurred. In addition, member profiles must be completed—it is how customers find NOWRA business members and regulators.

In August 2006, NOWRA's Board authorized moving into the next phase of the website work, in preparing for the 1st international program (March 2007) in conjunction with NOWRA's 16th Annual Conference. This new work, with funding support from outside sources, established the waterforalllife, model code and U.S. EPA MOU Partners websites. In late November, however, it was discovered that the website expansions and upgrading needed to be moved to a new host server, as the current provider lacked sufficient technical capacity to service the system. Transitioning to the new website host server in December and January 2007 was quite an effort — to say the least. It is now completed and the new website hosting service will save NOWRA at least $3,500 a year and allow more states to be hosted as well. The last activity in moving the "Septic Locator" to the new host site was completed in February.

In parallel with the website design and technical restructure process, content with updated and new information was prepared by the NOWRA office in late December and early January to place on all these new sites. The new sites went live in early January with features that include:

- A "community" bulletin board for committees and work groups to post documents and interact with their reviews. This system will reduce significant volume of emails.
- A "Calendar of Event," for not only NOWRA and the state's meetings, but others as well.
- A "SEARCH" feature just like Google allowing users to put in a word and get back information about the topic desired.

After the March conference, all of the conference abstracts and proceedings papers will be placed on the website.

Also added to the new system is an ONLINE registration software package for conferences and meetings. This package is a highly important feature for the NOWRA Conference registration, and allows as many as 40 meetings to occur simultaneously. It also provides the capability to track NOWRA member CEU's. After the March conference work on these new systems will link to the membership database. A demonstration of this system will occur at the SLC meeting in March.

Committees and members alike will also be given demos of the new sites, and the opportunity to update their member profiles as well.

Special Thanks to a Tremendous Website Team – Led by Ron Suchecki

Doing this work required a dedicated team who gave up a lot of hours during the Christmas holidays while keeping very strange hours late into the morning.

- The artistic design of the website originated with **Ron Suchecki** and was structurally implemented by **Sharon Manderson**, of Smart Solutions, a Maryland-based website design company.
- The **Carnegie Group** provided services to set up the technical components of the Community Bulletin Board and search features.
- **NOWRA's office staff** was busy updating file copy with the NOWRA Communications Committee and orchestrating the website financial services. The new online registration and event management is from GoMembers, Inc., from which the next module will be added this spring for member services management. The new host service is "Lunar Pages."

To everyone involved in this process—we convey a genuine "Thank You!"

March Awareness Week Puts National Spotlight on Ground Water

Nearly half our nation's population receives all or part of its drinking water from the ground, yet for most people ground water remains a bit of a mystery. This lack of knowledge can be a problem, particularly for the owners of private household wells, who bear responsibility for maintaining their own water quality.

To help address this issue, National Ground Water Association (NGWA) sponsors National Ground Water Awareness Week, which is scheduled for March 11–17, 2007.

Four themes will be emphasized during Awareness Week:

- Ground water protection
- Ground water conservation
- Well maintenance
- Water testing

For well owners, water quality problems can be caused by new sources of biological or chemical contamination, but not always. Sometimes a well or septic system in need of repair contribute to contamination of one's well water supply.

That is why NGWA recommends an annual water well check-up. An annual well inspection can often catch problems before they affect water quality. NGWA provides an inspection checklist in the Awareness Week section of its www.wellowner.org web site. It includes:

- A flow test to determine system output, along with a check of the water level before and during pumping (if possible), pump motor performance (check amp load, grounding, and line voltage), pressure tank and pressure switch contact, and general water quality (odor, cloudiness, etc.).
- An inspection of well equipment to assure that it is sanitary and meets local code requirements.
- A test of your water for coliform bacteria and nitrates, and anything else of local concern.
- A concise, clear, written report delivered to you following the checkup that explains results and recommendations, and includes all laboratory and other test results.

Well owners also should know that proper storage of hazardous materials such as chemicals, fertilizers and oil can be important to protecting their water supply. Animal waste also can be a threat to water quality if too close to the well head.

And well owners also are encouraged to use water wisely**.** There is no shortage of ground water nationally, but demand on a local or regional basis can create water scarcity. It only makes sense not to waste water.

- Fix leaky toilets or faucets to save thousands of gallons of water a year.
- Use water-efficient appliances.
- Use low-flow shower heads and water-efficient toilets.
- Avoid wasting water on the driveway, sidewalk or street when watering outside.
- Run the dishwasher only when it's full.
- Consider other ways to recycle or conserve water.

To learn more about these issues and National Ground Water Awareness Week, go to www.wellowner.org.

NOWRA
National Onsite Wastewater Recycling Association

NOTICE OF NOWRA 2007 ANNUAL MEMBERSHIP BUSINESS MEETING
Wednesday, March 14, 2007 – 12:15 PM

In accordance with ***Article III, Section 7, of the NOWRA ByLaws,*** all NOWRA members are formally notified through this communication, of the ***Annual Membership Meeting, scheduled to occur on Wednesday, March 14, 2007 at 12:15 p.m.*** The NOWRA 2007 Annual Membership Business Meeting will be held in the Grand Ballroom of the Marriott Waterfront Hotel, 700 Aliceanna St, Baltimore, MD.

All members are urged to attend and participate in this meeting. This notice will be placed on the NOWRA Website (www.nowra.org) with additional and updated information as it becomes available and in the Onsite Journal. The 2006 Minutes of the Annual Business Meeting will also be placed on the website. Additional information, please contact the NOWRA office at 1-800-966-2942.

Draft Business Meeting Agenda

1. Roll Call – A master 2006/2007 membership list will be available
2. Reading of 2007 Meeting Notice and August 30, 2006 Meeting Minutes
3. NOWRA Reports: President, Secretary-Treasurer, Executive Director
4. Committee Reports
5. Business Items:
   Old: 2006 Program and Membership Actions
   New: 2007 Program Plans
   2007 Board of Director Candidate Nominations Announcement
6. Open Member Discussion
7. Adjournment

Linda Hanifin Bonner, Ph.D., NOWRA Executive Director • February 12, 2007

NOWRA 2007 Member Survey.

Sponsored by the NOWRA State Leaders Committee, a survey of member issues is being conducted in early 2007. Its purpose is to assist both the State Associations and NOWRA in better understanding member needs for services, identifying future programs, and other areas affecting your work in the industry. The information received will then be used by the states and NOWRA leaders to prioritized future programs and projects to provide for the membership, and the level of resources needed to accomplish them. Completing this survey will require about 15–20 minutes. Once completed, please fax it to the NOWRA headquarters office at 831-464-4884. It is not necessary to provide your name; but we do need to know the state in which you are a member.

---

1. What are the <u>reasons</u> you joined an industry organization? (please circle the appropriate letters)

a. To obtain needed education and training.

b. To have my professional interests represented on regulatory and legislative issues.

c. To participate in a health insurance program.

d. Networking with other professionals.

e. Future job opportunities.

f. My business (boss) requires it.

g. I like the Septic Locator.

h. Other, please state _____

2. On a scale of 1 (low) to 5 (high) please give each item a rating about the <u>value</u> <u>you</u> place on the following association services.

_____ Education and training

_____ Representation and protection of professional interests on regulatory/legislative issues

_____ Participating in a health insurance program

_____ Networking with other professionals

_____ Future job opportunities

_____ Participating in the Septic Locator

_____ Other, please state _____

3. What programs or services would you like your association to provide?

_____

_____

_____

4. Please rate on a scale of 1 (low) to 5 (high) those items from the list below that <u>describe what you need most, as a professional</u> in this industry, to advance your business or career.

_____ Basic education and training for all industry levels.

_____ Knowledge about rules and codes at the state and national level.

_____ Regulator support for industry codes.

_____ Higher levels of expertise for designers & installers.

_____ Established standards for maintenance and service.

_____ Other, please state _____

5. On a scale of 1 (low) to 5 (high), please rate the actions and initiatives in the list below that <u>you believe</u> the onsite industry should either address in its work or provide.

_____ Adopting design standards for onsite systems.

_____ Certification Programs for ❑ installers, ❑ service providers, ❑ system designers, ❑ engineers.

_____ Funding for research projects.

_____ Advocating state requirements for continuing education and training.

_____ Having a capital hill lobbyist.

_____ EPA/State Underground well injection program

_____ Partnering with National organizations on common professional issues

_____ Industry standards on installation, operations and maintenance and system design.

_____ National homeowner education program.

_____ National system inspection (program) at point of sale

_____ Developing Responsible Management Entity (RME)Standards

_____ Other, please state _____

6. Please rate, on a scale of 1 (low) to 5 (high) the following programs that NOWRA should provide.

_____ Becoming a national certification organization.

_____ Specialized Training Seminars.

_____ Support to State Associations with Education and Training.

_____ Professional development programs

_____ Online education & training

_____ Technical design manuals

_____ Industry standards.

_____ An educational clearinghouse for the decentralized industry.

_____ Services to improve onsite system standards

continued on next page

7. Member Benefits

a. What are the three most important benefits that your State Association currently provides that supports you in your profession?

_____

_____

_____

b. What are the three most important benefits that the National Association currently provides that supports you in your profession?

_____

_____

_____

8. Member Needs

a. What are three services that you need from your State Association that represent the value of your membership?

_____

_____

_____

b. What are three services that you need from NOWRA that represent the value of your membership?

_____

_____

_____

9. Please rate on a scale of 1 (low) to 5 (high) the following services and benefits.

_____ NOWRA Annual Conference
_____ NOWRA Installer Academy
_____ NOWRA Onsite Journal
_____ NOWRA Septic Locator
_____ NOWRA Institutes of Learning
_____ NOWRA Sponsored Insurance Program
_____ NOWRA Sponsored Office Depot Business Program
_____ NOWRA Website Hosting Services
_____ State Annual Conference
_____ State Education Programs
_____ State Newsletter
_____ State Website

10. Responder Information

a. What is your professional category?

_____

b. How many years in this profession? _____

c. Do you hold any certifications? _____
If yes, please identify_____

d. What State Association are you a member?
_____How long? _____

e. Did you join the State Association to become a NOWRA member? _____

f. Would you recommend a colleague to join a State Onsite Association? _____

Please fax the competed survey to the NOWRA headquarters office at **410-798-5741**.
It is not necessary to provide your name; but we do need to know the state in which you are a member.

Thank you for taking the time to complete this survey!

NOWRA and EPA Announce 2007 Model Code Regulator Workshops

NOWRA began conducting the first of several 2007 Model Code Regulator Workshops on January 23. With funding support from the U.S. EPA Office of Water, these workshops are part of an overall education and outreach program for regulators and policy officials about managing onsite and decentralized systems within a regulatory framework. The workshops are intended to assist regulators and policy officials with understanding how to use the Model Code documents to evaluate, revise, or develop codes governing onsite systems. The workshop also identifies options available and steps involved to accomplish this process. The program includes an overview of the newly adopted documents, entitled the "*Model Code Framework for the Decentralized Wastewater Infrastructure*, now available on the model code website.

The *Model Code Framework* was written and developed by many onsite regulators who were part of NOWRA's Model Code Committee, some of whom will be conducting the workshops. All workshop participants receive a CD containing the *Model Code Framework* documents and a workbook containing the Executive Summary and presentation.

The Model Code Regulator Workshops are provided at no cost and are open to all state and local government officials involved in onsite wastewater and decentralized systems. Workshops are limited to 40 attendees and the cut-off date is 10 days prior to the workshop date.

The Model Code Education and Information is located on the new website where all documents produced as well as updates about the ongoing activities are housed.

www.modelcode.com

Additional Workshops Hosts/Locations Being Sought

Two additional workshops are scheduled to occur after the March Workshop at the NOWRA Conference.

Several locations **a**re being considered with selection based on the level of interest of states.

Please contact the NOWRA office to express interest in serving as a workshop host.

Use the accompanying form for future sign-ups/registration procedures.

Model Code Regulator Workshop Registration

Date and location of workshop _____

Registrant name _____

Organization _____

Position _____

Mailing address _____

_____

Email _____

Telephone _____

* * * * *

Please answer the following questions. Your responses will assist workshop leaders as they prepare to address specific issues identified by participants.

1. Is your jurisdiction currently involved, or planning to make changes revisions to onsite codes?

- ❏ No
- ❏ Yes. If so, when? _____

2. What are the primary changes or obstacles affecting the change revision process?

- ❏ Political opposition/ lack of interest (i.e. elected officials, homebuilders/realtors, environmental groups, etc.)
- ❏ Opposition/ lack of interest from onsite industry groups (i.e. OWWS contractors, designers, manufacturers, etc.)
- ❏ Disagreements among affected groups on specific technical or administrative concepts
- ❏ Other_____

3. What areas of assistance are needed to make code/regulation revisions?

_____

_____

4. What specific issue or special interests affecting your jurisdiction about onsite regulations and codes would you like to be see addressed at the workshop (check any all that apply):

- ❏ risk assessment
- ❏ performance standards
- ❏ practitioner certification
- ❏ technology evaluation
- ❏ practitioner roles and responsibilities
- ❏ operation and maintenance
- ❏ inspection and monitoring
- ❏ soil treatment issues
- ❏ system designs (prescriptive vs. performance)
- ❏ state vs. local authority and responsibility
- ❏ enforcement/compliance
- ❏ non-residential/community system management
- ❏ other_____

Please fax completed form to 831-464-4881 or mail to NOWRA, 3540 Soquel Ave, Ste A, Santa Cruz, CA 95062

STATE ASSOCIATION UPDATES

State Leadership—
The Grassroots Energy of the Onsite Industry

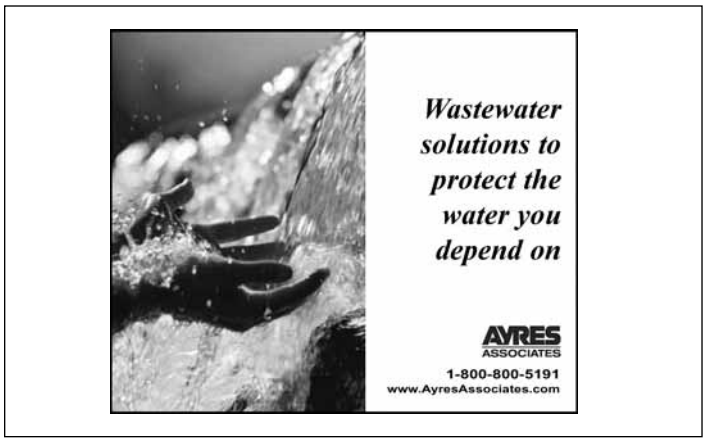
NOWRA State Leaders Gather for All-Day Meeting in Baltimore

As one of the two annual meetings in which NOWRA's state leaders meet to address programs and issues occurring in the industry, the first 2007 program is scheduled for the day before the NOWRA conference begins. The date of the 2nd meeting will be discussed at that time. Among the topics to be discussed and addressed at this meeting include:

- Update on the 2007 membership survey
- Demonstration on the use of NOWRA Committee Bulletin Board and online registration system and how it can be used by the states
- Administration of Membership Updates (to occur after conference)
- Organizing an Executive Managers subcommittee
- Discussion of California letter to be discussed asking for a review of the NOWRA's governance structure
- Getting information to others about the Model Code
- Understanding the differences in a C(3) and C(6) organization
- Moving from an Association volunteer to employee staff—how to manage the transition & an organization's growth
- Location for mid-year meeting – of state leaders; Memphis was suggested – Cliff invites folks to California

Plans are also to distribute the new 2007 State Association Management Guidelines—a "tool kit" that includes

- Introduction: What you as a State Leader need to know
- Developing Policy and Procedures
- Governance (leadership, bylaws, communication development)
- Financial Management & Reporting Requirements
- NOWRA Benefits: Association logos, templates, brochure materials
- The 3-R's of Membership: Retention, Recruitment & Reporting
- Legislative Guidance
- Institutes of Learning
- Training & Education Agreements



State Meetings & Conferences — Planning to Avoid Conflicts

The new NOWRA Calendar of Events has been updated with all conferences and meetings scheduled by the states—both 2007 and 2007.

During 2007, many state meetings had overlapping dates—an obvious message that better communication and coordination among states is needed. This situation impacts state events, if the exhibiting businesses have too many demands on them, and are forced to cancel participation in a state program. Already one state has reported this is an issue with several companies, and is an important topic to be addressed for 2008. Please use the NOWRA "Calendar" as your guide for these meetings. Please mark the date of April 6–10, 2008, as the date of the NOWRA 17th Annual Conference, in Memphis, Tennessee, and place information on your websites, as well.

Michigan Onsite Wastewater Recycling Association (MOWRA)

The MOWRA annual meeting was held in conjunction with the annual Michigan Onsite Wastewater conference January 9-11, 2007. At that time, a new leadership assumed office following the meeting. They are:

President—Ted Loudon
(Michigan State University)
loudon@msu.edu

Vice President—Larry Pickens
(Onsite Wastewater Solutions LLC)
larry@onsitewws.com

Secretary/Treasurer—James Kovitz
(Able Inspection)
jimk4mowra@mac.com

President Elect—Mike Stephens
(SCS Systems LLC)
scscons@yahoo.com

Immediate Past President—Dan Milan
(Milan Engineered Systems)
milantech@chartermi.net

The Michigan conference is co-sponsored by the Michigan Environmental Health Association, the Michigan Septic Tank Association, Michigan Water Environment Association, along with MOWRA and the Michigan Department of Environmental Quality and Michigan State University. This year was the 56th annual conference, making it the oldest continuously running onsite wastewater conference in the country. The conference this year was attended by 549 participants.

The conference was held at the Kellogg Hotel and Conference Center at Michigan State University. It featured a one day "A-Z" session, a Laser Surveying School, and 2.5 days of other technical sessions. The keynote speaker was Dr. Joan Rose, a renowned environmental microbiologist and holder of the Nowlin Endowed Chair for Water Management at MSU. Special out of state speakers were Sara Christopherson from the University of Minnesota, Larry Hepner from Delaware Valley College in Pennsylvania and Rod Fredricks, recently retired from U.S. EPA.

Ohio Onsite Wastewater Association

The Ohio Onsite Wastewater Association held their Annual Conference and Trade Show on January 25–26, 2007, in Columbus, Ohio. This year's conference surpassed last year's in participant attendance and exhibitors. Two sessions of topics were presented concurrently, one of them being the NOWRA Onsite A to Z program. The 2007 OOWA Distinguished Service Award was presented to Jean Caudill at the Awards Luncheon.

2007 Officers
President, Jim Whitcraft
Vice-President, Doug Ruehl
Secretary, Loretta Firis
Treasurer, Mike Morrow

2007–2009 Directors
Joe Keiser
Greg Piatt
Mike Rowan

OOWA 2007 Committee Chairs
Administration/Procedures, Joe Keiser
Communications, Jean Caudill
Education, Mike Rowan
Installer Qualification, Ty Cook
Legislation/Rules, Tom Grigsby
Membership, Doug Ruehl
Program, Doug Ruehl
Standards of Practice, Ralph Benson

Chapter 3718 of the Ohio Revised Code became law in 2005 governing household sewage treatment systems and small flow onsite sewage treatment systems. The new STS rules were adopted by the Public Health Council in May 2006 as required by law and became effective January 1, 2007, as revised Chapter 3701-29 of the Ohio Administrative Code. The new STS rules identify the responsibility of persons engaging in activities related to the siting, design, installation, alteration, operation, monitoring, maintenance and abandonment of the STS. Emphasis is placed on the owner as the primary responsible party. The rules also provide registration and competency requirements for installers, septage haulers and service providers.

Virginia Onsite Wastewater Recycling Association

Virginia Moves to Legislate Operation and Maintenance. As the *Journal* goes to press, the Virginia Onsite Wastewater Recycling Association has worked with Delegates in the General Assembly to move the onsite program into the 21st century. Two bills have come through committee unopposed. One from the Senate requires the Department of Professional and Occupational Regulation to establish certification credentials for designers, installers, inspectors, and operation and maintenance providers. The second bill, from the House and prepared by VOWRA, requires the Board of Health to establish a program for the operation and maintenance of all onsite systems. It also sets requirements for the program, requiring a licensed operator to operate all alternative systems, requiring sewage handlers, operators and inspectors to enter reports through a web-based reporting system, and require the Board of Health to utilize such a system for compliance monitoring, and requires a fund for administration and training. Both bills are on the consent list in their respective chamber for a vote. When that occurs they will move to the other chamber. There is a wide range of support for these bills which includes the Health Department, the Department of Professional and Occupational Regulation, home builders and the real estate community. Over the past two years the Washington Post has had several multi-page articles describing the problems with failed systems and the lack of knowledge by the homeowner. The effect of these articles was to provide delegates and their constituents throughout the state with a greater awareness of the problem. Many citizens and local officials have wanted to take the knee-jerk reaction by banning alternative systems, but the developers and planners understand the positive effects this can have to allow growth to occur on smaller lots with greater open space. So far they have prevailed, but with out this legislation that could change.

VOWRA Announces Voluntary Installer Registration Program. The new program was kicked off in February 2007 after a year and a half of study, debate, and training. Currently any licensed contractor and in some areas due to the lack of enforcement unlicensed contractors can install onsite systems in Virginia. VOWRA initiated discussions with the Department of Professional and Occupational Regulation (DPOR) in 2005 to determine how quality installers could be identified. At the same time the installer credential was being developed by the National Environmental Health Association. There were and are a lot of unknowns which make it difficult to establish a certification program over night. Accordingly, DPOR indicated that if we could get a program established and work the bugs out they would be willing to make it a certification program under the contractor licensure. In kicking off the program VOWRA is starting with some minimal qualifications. The installation firm must have a valid Class A or B contractor's license, letters of recommendation from two practitioners in the field, and a Registered Installation Specialist who is a full time employee (or owner) of the firm. The Registered Installation Specialist must be 18 years of age with five years documented experience, completion of the class on A to Z of Onsite Wastewater, two letters of recommendation and agreement to abide with the code of ethics. See the VOWRA Web for details and an application form.

Washington On-Site Sewage Association

There has been a lot going on in Washington in the last few months. Notably, our training center has been especially busy. Through December of 2006, we had nearly 600 attendees at our various training sessions. With the training season just beginning in October, that has been a huge opportunity and challenge for WOSSA.

Environmental issues regarding On-Site and the Puget Sound, has prompted a fair bit of legislation in the past year and it is turning itself out into various training initiatives in the 13 marine counties in WA. All the attention has some drawbacks as well, as we go into the current legislative session, with no less than 5 independent bills being proposed that will have various impacts on our industry and how it functions. Some we support, others need major revision. Thanks much in part, to the dialogue that we have been able to participate in with other state leaders through the NOWRA State leaders sessions over the last several years, (Florida in particular), we have been able to respond in positive ways and begun to get the word out to our legislative representatives who we are and the value of information that we can contribute. We are the best "eyes and ears" of what is happening on the ground across the state and are taking the opportunity to step up and represent our industry in Washington on some of these legislative issues.

WOSSA website goes interactive. After a long planning session, and with the support of Eric Evans one of WOSSA's new board members, WOSSA has completely restructured its website and has afforded its members the ability to register on line for

membership renewal, and class registration. In addition, non members are able to register for classes and pay for them online as well. We are working on developing discussion forums on a variety of topics from homeowner questions to legislation and have our links up to the Septic Locator which is providing an easier way for consumers to find service professionals that are association members in their area.....check it out and call John Thomas if you have any questions on the website or how we constructed it.

The 11th Annual Conference "Get Pumped in Ocean Shores" was a sold out event in with over 425 attending and 50 exhibitors. Highlights of the conference included "Sunny Kobe Cook" as a keynote speaker on Customer Service Excellence, learning tracks for O&M, Designers and Installers and a new "round table" session for small groups on various topical items. Our annual fundraisers were also successful. This year we enlisted the exhibitors to help sell tickets for the raffle. HD Fowler Inc. and Buster Neishe sold the most number of tickets of all the exhibitors and won a "FREE Booth" comp for the 12th Annual WOSSA Conference in Vancouver in 2008. Our Annual Scholarship Auction raised a little over $20,000 for our education scholarship program and the eligibility has been extended to the exhibitors and their employees that join WOSSA as group members. The Scholarship program will give away somewhere between $12,000 to $20,000 dollars to successful applicants, the kids of our members for continuing education.

Maryland Onsite Association Onsite Wastewater Professionals Association (MOWPA)

During the past months, the Maryland Onsite Wastewater Professionals Association (MOWPA) Board has been focusing on developing a new direction and approach to meet the changing industry needs. This work has involved restructuring the group in how it works, and re-examining the 2005 strategic plan. At the same time, the group is further developing its education and training program and supporting the national office with 2007 Conference. New officers and board members include:

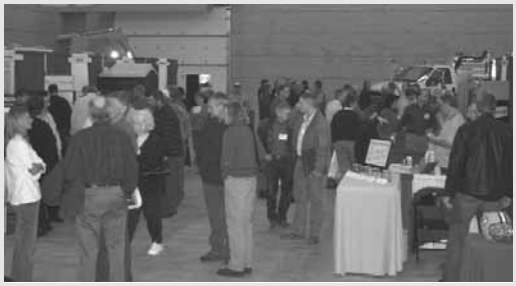
President - Robert Sheesley,
President of EcoSense Environmental
A former regulator with over 30 years of experience in the industry.

Vice President – Nancy Mayer
President of Mayer Brothers Concrete
Has been involved in both the onsite and precast industry for numerous years.

Secretary-Treasurer – Jim Merrow,
Regulator with the Maryland Department of Health & Hygiene
Works with the Boards and Commissions department.

Wisconsin Onsite Wastewater Recycling Association 2007 Conference

The Wisconsin Onsite Wastewater Recycling Association held a joint convention with the Wisconsin Liquid Waste Carriers Association on Jan. 26-27, 2007, in Green Bay, Wis. Almost 300 installers, soil testers, regulators and septage haulers were in attendance for the two-day educational sessions, which featured prominent local and national speakers. The event also featured 40 exhibitor companies displaying their products and/or services. The 2007 WOWRA Board of Directors was announced during the convention. They include: Sue Schambureck, president; Todd Stair, vice president; and members-at-large Bill Bergh, Mark Finger, Dave LaBott, Brian McQuestion and Tony Birrittieri.



Maryland Onsite System Site Tour Focuses on Sustainability Applications

During the NOWRA 2007 Conference in Baltimore, the annual field trip is always of great interest to visitors from other parts of the county. This year is no exception, and the locations and demonstrations provided by members of the Maryland Onsite Wastewater Professionals Association is one of the best—and also provides an opportunity to show many of the foreign visitors—how systems are designed and installed in the US. Participants on this site tour are visiting systems that demonstrate effectiveness in sustainability, protecting water quality, nitrogen removal and watershed management.

At the Four Season's Restaurant at the Carroll County Howard County line on Rt. 70. the group saw a system with advanced pretreatment FAST units followed by irrigation control valves leading to pressure dosed trenches; and two residential drip systems with recalculating sand filters in the vicinity of Four Seasons site.

The Lisbon, Howard County, Shopping center site demonstrated advanced pretreatment - BioClere followed by pressure dosed trenches—there were also some large systems with Treatment plants followed by pressure dosed trenches

An environmental camp in Frederick County, is a model of sustainability with blackwater greywater separation with dosing siphons and irrigation control valves going to pressure dosed trenches. See tour hand-out opposite.

Another site was an interesting I/A system Carroll County assisted living facility with advanced pretreatment discharging to two mounds, one with drip tubing and one with conventional pressure distribution. [Greater detail about these site locations can be found on the NOWRA website].

NutriCycle® Systems LLC

Sustainable alternatives to septic systems and sewers

- Clivus® composting toilets
- Graywater systems
- Nutrients recycled to the landscape and agriculture

NOWRA TOUR:
Nutrient Recycling System
Bar-T Mountainside Camp
Urbana, MD

BarT Camp provides 350 kids per day with both 'a great time' and environmental education. The camp sits on 150 acres and includes ball fields, courts, classrooms, a pool and showerhouse, an amphitheater, high and low ropes courses, a streambed 'laboratory', and active agriculture.

The original design was for a drip irrigation sewage system that would have consumed 5 acres of land, provided very little benefit to the land, and cost about $1 million. Instead, a nutrient recycling system was installed with all nutrients and organic matter used to benefit the landscape and agriculture, at half the cost (including basement spaces). Bar-T Camp was able to save money and demonstrate their environmental mission.

Composters under all toilets
Clivus Multrum composting toilets are in basement spaces under all toilets. Compost tea (composted urine) is stored for periodic agricultural use. Compost is removed annually for landscape use.

Compost tea used in agriculture
A nutrient management plan provided by the local Agricultural Extension Service governs the spreading of the compost tea (composted urine) on a farm field. This nutrient recycling procedure has no nutrient pollution, builds soil fertility, and reduces the use of chemical fertilizers.

Graywater wildflower meadow
Graywater from all sinks and showers is dosed to the root zone of this 8,000 square foot wildflower meadow without any pretreatment or septic tanks. Mechanical distributing valves direct a small aerobic dose to each of 20 zones, in sequence. Graywater design flow was 50% of the sewage design flow; actual graywater flow is 10% of graywater design flow.

Speakers: Barry Glotfelty, MDE, Approving Authority
Joe Richardson, Owner, Bar-T Camp
John Hanson, NutriCycle Systems, Graywater Designer
Don Mills, Sales Director, Clivus Multrum, Inc.

301.371.9172 ● Fax 301.371.9644 ● www.NutriCycleSystems.com ● jhanson@NutriCycleSystems.com
3205 Poffenberger Rd, Jefferson, MD 21755

Notice of NOWRA Application Search for 2008-2010 Board of Director Positions

Excerpt from NOWRA BYLAWS
(Adopted 2006 version)

ARTICLE V. GOVERNANCE

Section 1. Organization

The conduct of the affairs of the corporation and the attainment of its purposes shall be managed and guided by the Board of Directors.

Section 2. Structure

The corporation's Board of Directors is comprise of sixteen members, that includes the four (4) Executive Committee members (President, Vice President/ President Elect, Secretary-Treasurer, and the Past President) and at least two (2) representatives each from the various member sectors as identified below. The exception is the VIP sector, which shall not be represented. The exact number of directors may be changed by resolution of the Board of Directors. Each Director serves a three-year term or until their resignation, removal from office, or death. Each director elected serves a three-year term unless they are elected to be an officer, in which case the member will remain a director until expiration of the complete term of office. Transition of the current board to the future board should be no more than one-half of the member representation through attrition and one-half through new board members over 2-3 years.

Board *Member Sectors include the following designees.*

(a) Site Evaluator/Soil Scientist, Designer/Engineer

(b) Supplier/Vendor

(c) Installer/Contractor

(d) Operator/Manager/Maintenance-Service Provider

(e) Compliance Monitor/Regulator

(f) Academic/Researcher

(g) VIP (very interested party)

When a director is elected to the Board, as a stated sector representative, that board member will remain in that sector for the duration of that director's term on the board.

As of December 1, 2007, there are four (4) positions on the NOWRA Board of Directors to be filled in the August elections.
The position categories include:

- Academic
- Installer/Service provider,
- Engineer
- Manufacturer/Supplier

State groups are encouraged to recommend candidates and individuals are encouraged to apply for serving in this role. Directors and officers who serve in these positions, do so on a voluntary basis, and are not financially compensated for this work.

Expectations of NOWRA Board Members
Roles & Responsibilities

- Participating in 4 (face to face) meetings, that includes a 2-day strategic planning session, monthly teleconference calls, reading and reviewing all distributed materials.
- Serving as an active liaison and mentor with state groups on topics, and participating as NOWRA's official representative at meetings when requested.
- Contributing time in a leadership or participatory role on committees and special task groups when requested.
- Providing guidance and direction to the NOWRA Board and staff on the issues representing your industry sector or organizations positions and policies.

Supporting ongoing activities to ensure financial sustainability of the association.

Application Process
Potential candidates should prepare a letter to the NOWRA Nominations Committee c/o Executive Director. The letter should include:

- a statement of your desire to be considered for one of the positions within a specific category, and acknowledgement of the commitment to fulfilling the expectations, roles and responsibilities as a member of the Board of Directors,
- current employment, professional title, and position,
- number of years of work or affiliation within the onsite industry, and relevant expertise and/or credentials.

In addition, please prepare a statement responding to the following questions.

- What specific area of interest do you desire to work with the NOWRA Board on industry issues and how you will make a contribution
- **Why you are willing to serve on NOWRA's Board as a leader in the onsite industry**
- What is your perspective(s) on the directions that NOWRA as an organization should consider in order to increase its leadership role in the industry
- What are the critical issues that NOWRA's Board should be addressing on behalf of its industry members

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Send this information by June15, 2007 to
NOWRA's Executive Director, Linda Hanifin Bonner,
either by mail (3540 Soquel Ave, Ste A,Santa Cruz, CA 95062)
or email: executivedirector@nowra.org
or fax to 831-464-4881

NOWRA 17th Annual Technical Education Conference
2008 Call for Papers

Memphis Cook Convention Center • Memphis, Tennessee • April 7 – 10, 2008

The National Onsite Wastewater Recycling Association (NOWRA) welcomes abstracts for papers to be presented at the NOWRA Annual Conference in Memphis, Tennessee on April 7-10, 2008.

The NOWRA annual conference serves as the premier conference for the conveyance of new research, regulations and policy, experience and practices in the decentralized wastewater industry. The conference's exposition hall provides an invaluable opportunity to network and view the current and emerging technologies in decentralized wastewater treatment.

Two types of abstracts are open for considerations:

1. Technical topics including both case studies with limited data and research projects with a larger data set.
2. Policy topics dealing with regulations & policy, management, etc

They can be presented in a range of formats:

A. Poster
B. 30 - 45 minute presentations in either breakout or plenary sessions
C. Panel discussions from 45 minutes to a full day
D. Topic focused seminars from 1/2 to a full day

All subject matter related to decentralized systems is open for submission, including:

1. Technical
   a. Innovative products, technologies, and solutions for wastewater treatment
   b. Nutrient reduction technologies
   c. Cluster system design and application
   d. Reuse case studies and research
   e. System performance evaluation
   f. Modeling of decentralized systems
   g. Soil and site evaluation research and evaluation tools
   h. Fundamental decentralized related research
2. Policy
   a. Standards, regulations and policy
   b. Effective planning and management
   c. Cluster systems
   d. Responsible management entities
   e. Performance standards
   f. Reuse
   g. Education, training and certification
   h. Successful planning and management strategies to assure performance

Questions about the applicability of topic should be discussed with Committee Chair, Sara Christopherson by email at or by phone at 612-625-7243.

ABSTRACT AND PAPER DEADLINES

1. Abstracts submittals are due by September 7th, 2007
2. They will be submitted electronically at NOWRA's website at:
3. Confirmation of abstracts submission will be sent via email within one week of the abstract being received.
4. Individuals will be notified of the Education Committee's selection by October 5, 2007 and provided with instructions regarding paper criteria and format. A draft agenda will also be provided at this time. This information will also be available on the web site.
5. Approved submittals are to be produced as papers and submitted via the website to the Education Committee for review and editing by January 4th, 2008.
6. Comments and/or edited papers will be returned to the author by February 8, 2008.
7. Final papers must be provided to the NOWRA Headquarters office by March 3, 2008 in electronic format to be included in the proceedings and conference.

SUBMITTAL PROCEDURES

The following information is needed to submit your paper via the web site:

1. Name of Lead Author and Presenter
2. Affiliation of Lead Author/Presenter
3. Address of Lead Author/Presenter
4. Phone number and email address of Lead Author/Presenter.
5. Names of co-authors, if any.
6. Abstract Type
   a. Technical
   b. Policy
7. Format for presentation
   a Poster
   b. 30–45 minute presentations in either breakout or plenary sessions
   c. Panel discussions from 45 minutes to a full day
   d. Topic focused seminars from 1/2 to a full day
8. Abstract Topic
   a. Innovative products, technologies, and solutions for wastewater treatment
   b. Nutrient reduction technologies
   c. Cluster system design and application
   d. Reuse case studies and research
   e. System performance evaluation
   f. Modeling of decentralized systems
   g. Soil and site evaluation research and evaluation tools
   h. Fundamental decentralized related research
   i. Standards, regulations and policy
   j. Effective planning and management
   k. Cluster system policy
   l. Responsible management entities
   m. Performance standards
   n. Reuse policy
   o. Education, training and certification
   p. Successful planning and management strategies to assure performance
   q. Other: _____
9. Title of paper
10. 200-300 word description of the proposed paper/presentation. (Please do not send a PowerPoint presentation or the full text of the paper/presentation.)
11. A short biography that includes education degrees and description of experience as it relates to the onsite industry.

ONSITE INDUSTRY FEATURE

Nitrogen Management: We Can Do That!

By Jason Churchill, PhD, RS

Increasingly, nitrogen management is becoming an issue for the wastewater treatment industry. Nitrogen concerns mainly fall into two categories: environmental health, and public health. In regard to the former, wastewater may contribute to eutrophication of lakes and streams. (Eutrophication is a condition characterized by high biological productivity, leading to algae blooms, oxygen depletion, fish kills, and other disturbances of the surface water ecology.) In regard to the latter, nitrate contamination of groundwater is often a concern because of claims linking it to blue-baby syndrome (infant methemoglobinemia), increased risk of cancer, miscarriage, and diabetes. Doubt about the validity of those health concerns has been growing, due to the lack of substantive and reproducible supporting evidence. Nevertheless, regulations increasingly impose highly restrictive discharge standards for treated wastewater, often requiring that treatment systems meet a limit of less than 10 mg/L total nitrogen at end-of-pipe. The federal drinking water standard for nitrate is usually cited as the basis for restrictive discharge standards, though by law that standard applies only to public water supplies, not to private wells or to discharged waste.

Whether the concern is environmental health or public health, and regardless of the validity of public health concerns, it is important that the decentralized wastewater treatment industry be prepared to meet stringent discharge standards where required. The industry is actively responding to this need. But it's important to note that there is a correlation between cost and level of treatment. Cost-effective advanced treatment systems are available that — when properly designed, built, installed, operated, and maintained — reliably produce effluent with nitrogen concentrations less than 20 mg/L (a level that represents approximately 69% nitrogen reduction, assuming typical residential wastewater strength).

A few manufacturers also provide systems designed to consistently and reliably meet a more stringent 10 mg/L target (representing further reduction of only 16%). However, this relatively small gain in nitrogen removal comes at a disproportionately high cost. Such systems require supplemental treatment steps and devices that add substantially to costs. For example, devices to deliver supplemental carbon and/or alkalinity may be needed; and additional tanks or compartments may be needed to increase hydraulic residence time and provide anoxic conditions that favor denitrification. These features require more intensive operation and maintenance, and regulators may demand more frequent monitoring and inspections, raising costs even more.

Moreover, it should be kept in mind that onsite systems are not the only source of nitrogen inputs to ground or surface waters, nor are they typically the source that has the greatest impact on water quality. Nitrogen from agricultural or residential fertilizers, atmospheric deposition, and animal feeding operations can be major contributors. For example, for the Chesapeake Bay area it has been estimated that only about 4% of nitrogen loading to the Bay derives from septic system waste, whereas 31% is from agricultural fertilizers; 26% is from atmospheric deposition; 20% from municipal and industrial wastewater; 10% from non-agricultural fertilizers; and 8% from animal feeding operations.* (Anderson, DL, 2006. *A Review of Nitrogen Loading and Treatment Performance Recommendations for Onsite Wastewater Treatment Systems <OWTS> in the Wekiva Study Area*. Figure 6. Downloaded on February 5, 2007 from http://member.fhba.com/docs/Septics%20Final%20Wekiva%20Paper%202%2014%2006.pdf.)

Where nitrogen loading is a concern, it is critical that all of the contributors be identified, and that the burden of nitrogen management be assigned proportionally. Practical, cost-effective management solutions should be required of all sectors, especially those sectors contributing the greatest share of the load.

Jason Churchill, PhD, RS, is the Government Relations Manager for Orenco Systems Inc., Sutherlin, Oregon.

ONSITE INDUSTRY FEATURE

One Regulator's Perspective

Nitrogen from Wastewater: Is It a Problem?

By Mark Hooks R.S., C.P.M.

A wise man once said "Nitrogen is ALWAYS important in my view, but not always a problem."

In my nearly 20 years of regulating wastewater treatment systems the current debate about whether nitrogen is a problem that should be dealt with has generated the most controversy. To a large degree people are either adamantly for or against removing it. In many ways both "sides" are right.

The key to a good policy decision on nitrogen is gathering the right information and having an open public discussion about the costs and benefits. I offer some case studies that demonstrate both "sides" of the debate. Both deal with fresh water springs, a scenario where the focus is on environmental protection.

Florida Springs, A Nutrient Removal Case Study

One of Florida's most precious natural resources is its freshwater springs. These freshwater springs reflect the health of the states groundwater and are major contributors to regional rivers and streams. They are also a major tourist draw to the area for swimming, canoeing, fishing and other ecotourism. In these springs the need to remove nitrogen to protect the native aquatic plants and animals is a growing concern. Ecologists are telling us that shifts in the aquatic plant and animal populations are occurring when levels go above 0.02 milligrams of total nitrogen per Liter (note this is many times less than the public health protection level of 10 milligrams per Liter of nitrate). These shifts are best illustrated by the accompanying photographs and illustrations.

As nitrogen increases, native vegetation is crowded out by invasive plants. As a result many of the aquatic organisms that feed on them die. The nitrogen feeding the organisms shift away from native vegetation comes from many sources. Before anyone can develop a cost effective strategy for tackling the problem, the sources of nitrogen must be identified. Let's take a look at Wakulla Springs as an example of where nitrogen from septic systems is considered a problem.

Wakulla Springs feeds into the Wakulla River that flows to the Gulf of Mexico. Aside from the spring and river, saltwater environments like the Gulf are also known to be adversely affected by nitrogen. Data was gathered to be used to make policy decisions in this case. Figure 1 shows an example of the relative contribution from inventoried nitrogen sources of the region in Florida that contains Wakulla Springs. This figure was part of a comprehensive study of the nitrogen pollution sources conducted by the Northwest Florida Water Management District and the Department of Environmental Protection.

Figure 1 illustrates that sewers (labeled WWTF for wastewater treatment facilities) and septic tanks (labeled OSTDS for onsite sewage treatment and disposal systems) are very close in their estimated contributions. Similarly, the impact

Native Macrophyte vegetation in an unimpacted spring-fed stream.

Invasive algae growth in a nutrient impacted spring-fed stream.

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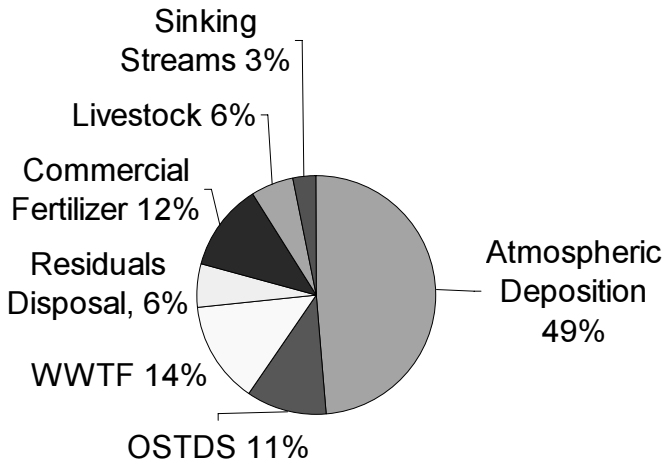

Figure 1: Relative contribution from inventoried nitrogen sources to 1990–1999 average nitrogen loading in semi-confined and unconfined portions of Leon and Wakulla Counties.
(Source: Northwest Florida Water Management District)

from agricultural activities is much less than that than in more intensely farmed areas. This area is experiencing rapid urbanization and has a total of 48,248 onsite sewage treatment and disposal systems, with nearly 700 additional systems being added each year. The spring was experiencing increases in nitrogen that were being blamed for a reduction in the clarity of the water and an explosive growth of Hydrilla. Hydrilla is one of the non native plants that outcompetes the native vegetation in springs. Associated with this invasion of Hydrilla the native apple snails have all but disappeared from the Wakulla River. These snails are the primary food source for a bird call the Limpkin.

After considerable public meeting input from scientists, concerned citizens groups and wastewater professionals, both Florida counties in the Wakulla Springs recharge zone recently adopted performance based nitrogen limits policies for onsite sewage treatment systems. The policies which establish a 10 milligram per liter discharge limit on total nitrogen entering the drainfield. This action will significantly reduce the amount released when compared to a conventional septic system. The key to the success of this policy development was the public's careful consideration of the environmental impacts versus the installation, maintenance and operational costs of the nutrient removing systems. This policy was part of a more comprehensive plan that is also addressing the sewer (WWTF) contributions of the nearby Tallahassee sprayfield.

The Other "Side" of The Story

The other "side" of the story compares the Wakulla Springs situation to another region in the state with similar geology, but dramatically different land use patterns. Lafayette County Florida has karst geology like the Wakulla Springs region, but differs in that much of the county is still relatively undeveloped with the dominant land use being agriculture. The county only has a total of 3,065 onsite sewage treatment and disposal systems, with 89 new onsite sewage treatment and disposal systems are being installed per year. The U.S. Geological Survey documented the various sources of nitrate nitrogen in the county in a manner similar to that of the Wakulla Springs area. When compared to the Wakulla Springs region you can see that there is a dramatic difference in the total nitrogen input from septic tanks.

Septic tanks represent one percent or less of the contribution in this region, with their percentage of the contribution being steady for decades. Therefore, any policy aimed at reducing these impacts would be less effective at protecting the area's springs than addressing the various agricultural contributions. Current springs protection strategies in this area focus on agricultural's best management practices including enhanced livestock waste management and row

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Hydrilla has become the dominant plant in this spring-fed stream.

A Limpkin feeding on an apple snail.

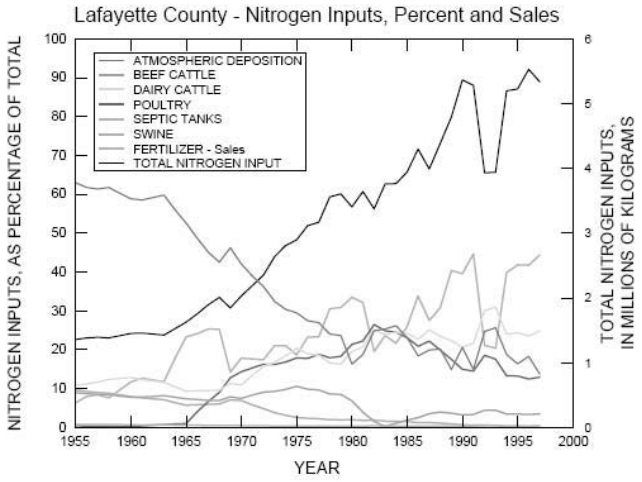

Figure 2. Estimated annual N inputs and relative percentage of total inputs of nitrogen from fertilizers, animal wastes, atmospheric deposition, and septic tanks for the years 1955–97 in Lafayette County (interpolated data for missing years are denoted by open symbols).

crop fertilization management. The only special permitting requirements for onsite sewage treatment and disposal systems in this county deal with the more densely developed areas in the floodplains of certain nitrogen impacted streams.

A More Perfect Approach

While it may seem that the Wakulla Springs approach is a progressive one, it still falls short of fully implementing the concepts in the NOWRA Model Code Framework. To simplify things the model code uses a formula. The formula is that the desired goal for protecting public health and the environment must be achieved by taking the raw wastewater strength minus the pretreatment credits minus the soil treatment credits.

The key piece missing in the Wakulla approach is the credit given for soil treatment. That makes sense when we consider that there are too many unknowns about the fate of nitrogen in the soil. Many studies have been conducted of onsite sewage treatment and disposal systems in Florida with wildly varying soil treatment results for nitrogen. In many cases it seems that the very subtle differences in geology, soils and depth to water tables make dramatic differences in the result. This variability has made accurately predicting the treatment outcome difficult. Until the effect of soil treatment is more fully understood the policy focus will continue to rely on pretreatment reductions.

There is a challenge here for the scientific community. Further study on the fate and transport of nitrogen is needed in order to more accurately predict the natural removal in the soils. Once it is fully understood, we can begin to rely on the soil as an effective portion of a comprehensive wastewater treatment system for nitrogen, much the same as we rely on the soil to remove pathogens.

One should also not loose sight of changes in land use that will drive the need to update wastewater treatment policies. If Lafayette County shifted away from agriculture and towards an urban landscape, the shift in the relative contributions of nitrogen would place more importance on the need for enhanced nitrogen removal from wastewater. I encourage those involved wastewater policy development to work side by side with county planners. You must have a forward looking wastewater policy that addresses future land use activities in order to prevent pollution problems from occurring.

The Take Home Message on Wastewater Nitrogen Policy

There isn't one answer on whether nitrogen is a problem or not. There are many places where the costs of removal are not justified by the benefit gained. All discussions about wastewater nitrogen policy should be held in an open public forum and must consider:

- The environmental and public health sensitivity to nitrogen (what are the impacts).
- The relative sources of nitrogen in the environment.
- The cost of installation, operation and maintenance of the technology needed.
- The implications of not removing it.
- The public support or opposition to the proposal being considered.

Only after careful consideration of these items can you have a sustainable and effective policy.

If you are interested in learning more about Florida Springs, I recommend these resources:

http://fl.water.usgs.gov/Abstracts/wri99_4252_katz.html

http://www.floridasprings.org/exploration/featured/wakulla/

http://www.tappwater.org/default.aspx

http://www.fwfonline.org/projects/springs/index.htm

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