Summer 2006

ONSITE journal

NEWS FOR THE ONSITE WASTEWATER RECYCLING INDUSTRY

INSIDE:

2007 Director and Officer Ballot

Part II: Women in NOWRA

2nd Annual Installer Academy

Featuring this Month:

Water Quality & Technology

NOWRA National Onsite Wastewater Recycling Association

Vol. 15 No. 3

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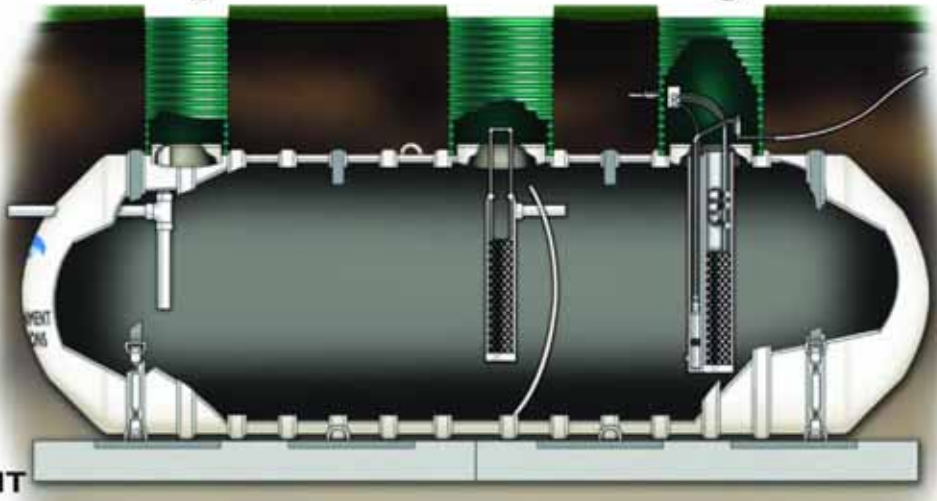

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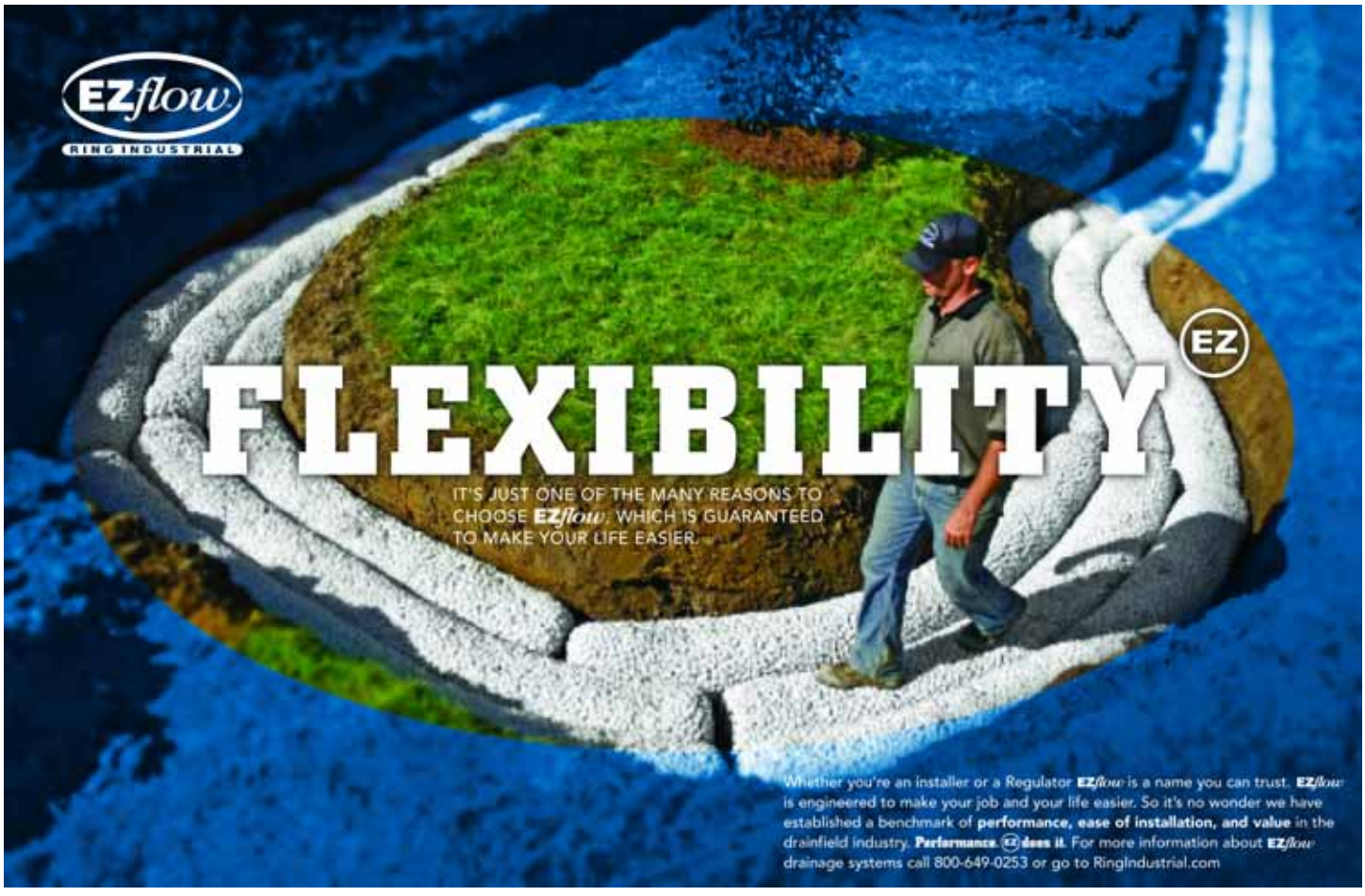

ONSITE journal

Summer 2006

NEWS FOR THE DECENTRALIZED WASTEWATER INDUSTRY

National Onsite Wastewater Recycling Association, Inc. Vol. 15, No. 3

ADVERTISERS' INDEX

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OUR SAY
INDUSTRY ISSUES

Workforce Shortages: Real or a Myth

What are the future workforce issues affecting the decentralized wastewater industry—and are we prepared to meet their challenges?

In a recent article from his "Legacy series," John Luthy, *The Futures Corporation* president, reports that many public works organizations in the "centralized industry" will face significant worker shortages beginning in 2005 and significantly escalating for the next 20 years. Part of this shortage is attributed to the "baby boomer" retirement —when the mass exodus of the experienced work force begins a national transition. Another is due to a deficiency of skills and knowledge of potential workers, who should be assuming these vacant positions. These scenarios pose the question as to whether the skilled workforce needed to assume these jobs is not only available—but does it exist?

Headquartered in Boise, Idaho, The Futures Corporation is a firm specializing in strategic thinking about the future. They focus on how emerging challenges will impact people, productivity, performance, and economic vitality. Luthy's findings also report that it is the pace of technological change and increases in available knowledge/skills that is the major driving force for training and development needs. "*Far too few people today are properly prepared for emerging challenges of tomorrow—meaning far too many organizations are prepared for the growing number of workforce challenges. Continuing education, training, and workforce development must be taken more seriously by government and industry*." The New England Interstate Water Pollution Control Commission (NEIWPCC) echoes this very theme in a report (December 2005) dwelling directly on issues affecting the centralized wastewater industry.

To gain a sense as to whether these identified trends would affect the decentralized wastewater industry, a short questionnaire was emailed to various businesses and board members. This article was compiled from their responses and research from other articles. It is not intended to be interpreted as actual survey findings, and only reflects the insights and opinions of a select group to the predicted worker shortage in the centralized industry workforce. Our interest is to pose the question, and examine whether similar issues will affect the decentralized wastewater industry. We think so, even though there are distinct socio-economic and technological differences in the make-up of industry practitioners, as noted in the membership report also in this issue. NOWRA members are more representative of smaller businesses—fewer engineering organizations. And, there are far more "managed systems" within the centralized wastewater industry; as compared with the decentralized industry, which is currently regulated more within a public health environment, than within a public works agency.

However, there is a critical and important factor not to be overlooked. The decentralized wastewater industry is far more economically self-sufficient, than the "big pipe" systems, who have depended upon the federal government for over the past 30 years to finance their facilities. Doing this article has not only peaked an interest level, it has also surfaced some important questions. If there is significant interest in this topic, should NOWRA consider conducting a more in-depth survey on this topic?

So, what did we learn?

Perhaps the most important aspect of what we learned is what we don't know. Clearly there is a question as to whether the predicted shortage will or will not occur in the decentralized industry. However, with quality surveys like that of the New England Interstate Water Pollution Control Commission (NEIWPCC), the facts within the centralized wastewater industry are only difficult to ignore. As an example, to determine whether a wastewater treatment facility (WWTF) operator training program would benefit the industry, the NEIWPCC surveyed 123 wastewater treatment facilities in the New England area.

Questions regarding plant type and size, as well as workforce characteristics, current and future staffing needs, hiring procedures and salary/benefit packages were used in the NEIWPPC survey. The study results found that 39% of the employees are currently at the mid-level point of their careers and 40% are considered senior level; 43% fall within the 41–50 year old bracket and 31% in the 51 and older age range. Only 5% of workers fell in the 18–30 year old category. Their findings show that 94% of the WWTF's do not have a recruitment program in place, and that 63% of plant facilities will need to replace significant staff during the next 5 years.

So, are the workforce shortage trends in the centralized industry an indicator of what could occur in the decentralized Industry? And if so, what is the predicted timeframe?

According to the responses received from the NOWRA email query, concerns by members regarding a worker shortage in the decentralized industry are emerging. Shadowing or overriding this concern at this time, however, is a greater pre-occupation on economic

growth as the decentralized industry emerges as the legitimate alternative to "big pipe" treatment systems. In some areas, there is already a shortage of trained practitioners, while a glut in contractors and engineering fields exists in others. Most of the responders indicated their belief that with an increase in training programs for industry practitioners (like NOWRA's A to Z program), there is the potential for a large number of well-trained individuals to materialize in the coming years.

One aspect that really stood out in the responses was that the group believed overall, that public awareness of the industry's growth and the availability of jobs is the more difficult issue to address. While knowledge about the industry and possible pathways to a career are important facts to make known, proper training, ensuring that competitive wages and benefits exist may work to counter a potential shortage, although this is admittedly more difficult in the public sector, than in the private sector.

The challenges—technology or an image based on negative perceptions

The group responding also acknowledges that while the decentralized industry still has a lingering "image problem," they believe that certification programs offered by NOWRA will add status. And, with further education of the general public, community and business leaders and legislative persons this negative perception will change. They also point to how quickly negative political scrutiny and criticism occurs when systems fail as being a detriment to potential job-seekers. Overall there is the feeling that jobs in the decentralized industry are no different than related ones (i.e. construction) and often carry similar burdens—such as excess baggage of negative perceptions.

Technical complexity about the systems was also offered as a possible deterring factor for increasing industry workers. But the group vetoed this characteristic, claiming that most people do not think of the wastewater industry as highly technical or one requiring specific skills or scientific expertise. One person did say that the industry may have a false reputation as being "too technical" due to "experts" developing theories and setting standards without thoroughly proving them, and promoting their own agendas, rather than what is best for the industry as a whole.

Actively recruiting new members to the industry is, however, viewed as a critical factor. On this topic, the group was very concerned. They offered suggestions for several methods of recruitment—also relating to strategies for increasing the workforce. These included increased exposure at the college level; national certification programs to add prestige to the position; differentiation of titles by skill to add status; partnership with technical high schools and colleges; and again, general education of the public.

A common thread—transition!

The greatest concern expressed was how the passing on of education and skills from the older, more experienced workers to the newer industry members will occur. Currently, many of the older educators in the decentralized industry are retiring. These are the individuals who have conducted the research to support technology to where it is today. And at the same time, the trend for universities or schools offering agriculture or environmental programs is not continuing. Most are not making plans to either expand course offerings or even to maintain them. Rather, these schools are phasing out the programs relating to septic systems. As the federal dollars supporting land-grant universities and colleges for these programs are ending, so are the courses. How do we address the transition process of this "brain-drain?" Mentoring programs and OJT training linked to certification programs were offered as solutions. Replacing retirees prior to their actual date of retirement so that they may train the new employees was another suggestion.

While at this time, we do not have the actual statistics offering proof of a current or future worker shortage in the decentralized wastewater industry, the possibility for one emerging clearly remains as a very realistic threat. Recruitment, and the consequential growth of the industry, is always beneficial. Focusing on opportunities that exist now with pending retirees still around to take a greater standing in the professional lives of younger members, can only help the wastewater industry as a whole. Programs initiated by NOWRA, such as the Institutes of Learning, and the operator training program suggested by the NEIWPCC, serve as rewarding models.

What do you think?

- Are the warning signals also here for the decentralized wastewater industry? Or, can this industry continue in its self-sustaining socio-economic model and profit from proactively countering the issues of a pending shortage before it actually occurs?
- Do you believe there exists or will exist a workforce shortage in the decentralized wastewater industry; and if so, what should we do to proactively meet the challenge?

We need to hear from you!

Linda Hanifin Bonner, Ph.D.
NOWRA Executive Director

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MEMBER'S SAY
INDUSTRY ISSUES

LETTER TO THE EDITOR

"The ball is in our court."

I just finished reading the article in the Spring 2006 *Onsite Journal* "How Federal Actions and State Events Ultimately Affect NOWRA Members Financially, and the Economy of the Decentralized Industry." I am in the unique role of being the Executive Director of both a nonprofit water quality organization and an onsite organization representing installation professionals. I deal with both sides of the issues being discussed in this article. While I cannot speak to how the information was presented in Maryland, I can give you my opinions.

First, I will have to say that I do agree with the statement that "septic systems together with stormwater and sediment runoff are a significant nonpoint source pollutant".

Second, the article in quoting the U.S. EPA in its April 1997 "RESPONSE TO CONGRESS ON USE OF DECENTRALIZED WASTEWATER TREATMENT SYSTEMS" left out what I feel is the most important part: "**adequately managed** decentralized wastewater treatment systems are a cost-effective and long-term option for meeting public health and water quality goals". Also reported in the "NATIONAL WATER QUALITY INVENTORY: 1996 REPORT TO CONGRESS" was this statement that "improperly constructed and poorly maintained septic systems are believed to cause substantial and widespread nutrient and microbial contamination to ground water."

As I talk with installers across the state, I find many that are not interested in advanced systems or do not want to become involved in the maintenance side of the business. They feel that the homeowner will not pay for the system that will protect water quality or that competition will not allow them to sell the better system. They have no desire to learn about ongoing maintenance of systems. I can take you today and show you newly installed systems that are failing and polluting ground and surface waters because the homeowner either didn't know about advanced systems or didn't want to spend the money, the installer had to be competitive with what everyone else was doing and/or the regulatory agencies either did not have the power or the will to cause the needed advanced system to be installed.

Yes, decentralized and onsite wastewater treatment are here to stay. They can provide a fantastic alternative to central sewers and CAN protect water quality, BUT they HAVE TO BE properly engineered and installed and then adequately managed and maintained. And that is what the industry professionals must realize, that if, as stated in the article, "onsite and decentralized systems are not seriously valued as a legitimate and integral part of the wastewater infrastructure" it is because of the poor design, improper installation and lack of management and ongoing maintenance that still happen in far too many installations. These issues CANNOT wait until some regulator makes it happen.

Yes, the financial and economic health of the decentralized industry IS being damaged, but not by EPA or others that try to protect water quality, but by industry professionals, regulators and, yes, politicians that WILL NOT do what has to be done to insure that the decentralized system installed today will function properly not only tomorrow but for years to come. The ball is in our court.

David Casaletto, *Executive Director*
Table Rock Lake Water Quality
Missouri Smallflows Organization
P.O. Box 606
Kimberling City, MO 65686
417-739-4100, Fax: 417-739-9889
Cell: 417-230-2111
Email: mso@lvbw.net
Web: mosmallflows.org

NOWRA State Leaders Meeting

Sunday, August 27, 2006 – Adam's Mark Hotel – Denver, Colorado

SESSION TOPICS

- NOWRA Member Survey
- Membership Recruitment Strategies
- Existing and Emerging State Issues
- NOWRA Website Restructure & Database Management – Phase II
- 2007 Legislation

NOWRA IN ACTION

This is a condensed report of the two-day meeting; the complete Board meeting report is listed on NOWRA's website.

NOWRA June Board of Directors' Meeting

On June 8-9, 2006 NOWRA's Board of Directors met in Baltimore, MD, site of the 2007 conference, for a two day meeting. Participants included Raymond Peat, Jerry Stonebridge, Brian McQuestion, Eugene Bassett, Mary Clark, K.R. Davis, Tom Groves, Mark Hooks, Sara Christopherson, George Loomis, Richard Otis, Al Schnitkey, Ron Suchecki, Howard Wingert, Tony Smithson, Mike Corry, Linda Hanifin Bonner, and Claudine Bodin. Absent were Tim Frank, Bob Himshoot and Carl Thompson.

During this two-day meeting, numerous topics affecting the industry's work were addressed and issues affecting the membership were brought to the Board's attention. It is through these sessions that decisions about NOWRA's work in the decentralized industry takes place.

Affirmation of Draft 2005 NOWRA Vision Mission Statement

In 2005, the NOWRA Board of Directors spent a 6-month period in defining the priorities of its work and future direction of the industry. This work also included the development of a new vision and mission statement that has been publicized in several documents. During 2006, NOWRA Board members engaged in additional discussions regarding the clarity and meaning of these messages. In June, NOWRA Vice President Jerry Stonebridge provided a review of previous discussions on the vision/mission statement with other examples presented for consideration such as the International Water Association. Board members were asked to identify specific words that relate to their view of NOWRA's vision and mission for further discussion. It is planned that affirmation of this work will occur prior to the August conference and will form the basis for the updated banding and image of the Association.

NOWRA Conference Planning and Management

The 2006 Denver Conference program structure is completed and on-line registration capability underway. Reviewing of the exhibit hall and locations for complimentary booths, it was decided that placing the complimentary booths in the main room of the exhibition hall and marketing the remaining items to local and western exhibitors was the best approach. The Board also agreed with the committee's recommendation that the conference proceedings would be placed on CD this year.

The 2006 Installer Academy technical program should be completed by late June/early July and marketing of exhibit space will begin in July. On-line registration capabilities will also available in July.

The 2007 (Baltimore) Annual Conference and International Program preparations are well underway. Themes and funding to support speakers traveling from Europe and other countries were covered. NOWRA's Board was informed that sponsorship approval from the IWA has been received. The Executive Director will proceed with revising the 2007 conference budget; initiating the development of funding grants and conference sponsorships; clarifying EPA procedures to allocate funds to support conference speakers from WERF; revising the program announcement and producing marketing and website information by early July. It was also agreed that time will be allocated for a WERF research session meeting.

Recommended Draft Conference Management Exposition Procedures

NOWRA's Board agreed to send the draft document to active conference exhibitors and businesses for review and input. Further action and discussion will occur at the Denver 2006 meeting.

NOWRA's Board Approves Participation in Cole Publishing "Partners in Education Program"

Cole Publishing Co,, sponsors of the Pumper & Cleaner Exposition has requested NOWRA's participation in a one-day "Partners in Education" program that would increase attendee's education and training at the Annual Pumper & Cleaner Exposition. It was decided that NOWRA will only provide the CEU's that comply within the confines of its existing conferences and education programs and will forward additional logistical questions for a response.

NOWRA Board Approves Model Code Peer Review Group Report

Board members focused on the results of the groups work and the process to produce the summary report about the model code documents. Other topics included how NOWRA will administer the code and collect and manage data, and whether or not there is an existing

plan to do this. Mark Hooks, FL Board member stated that Florida staff will support the development of a comprehensive database to facilitate the process. At the same time, there is a need to identify states that will recognize and adopt the process that NOWRA develops. Future website hosting will occur. In the mean time, NOWRA's Board approved the duel process to get basic documents approved and additional information completed for the appendices.

ADWA Guidance Document for Advanced Systems

Board members discussed the request for NOWRA endorsement of the draft document prepared for advanced treatment units. Following this discussion, *the Executive Director was requested to acknowledge receipt of the document to AWDA and to inform the organization that their request for review and recommendation for Board Action will occur within its Technical Practices and Model Code Committees prior to taking official action on the request.*

NOWRA Web Site

An update on the progress of NOWRA website enhancement, membership directory and septic locator was provided to Board members. Discussions ensued regarding the 2007 NOWRA Business Benefit Program and updates with respect to marketing this additional information.

501 C(3) Governance Structure

Howard Wingert, task force chair, updated the Board on development materials for the governance structure of the National Onsite Wastewater Resources Education and Research Foundation. The NPCA model is currently being used and the following items were discussed regarding this: NPCA Foundation contracts out to the NPCA organization for one staff person to provide administrative services; one of the tasks of the NPCA Foundation board is to establish investment policy on the management of the funds; and the NPCA Foundation Board of Directors membership is comprised solely of the NPCA board members.

Website Enhancement

Ron Suchecki reported on the meeting with Web Connections and ongoing changes to NOWRA website to provide structural improvements. The main priorities are now marketing the enhancements, generating revenues and getting the online conference registration established.

NOWRA Model Code Decisions

- NOWRA's Board of Directors approved and endorsed unanimously the model code documents with appendix F attached.
- The also endorsed and approved the guidance document (June 2005 draft – edited and changed following the May 2005 meeting). It was agreed that before these documents are publicly released, they will follow NOWRA's existing procedures for a document review; a task team consisting of the tech practices, etc. will make sure there is consistency in wording and intentions within the documents.
- The existing model code committee will be requested to meet on an annual basis at a NOWRA sponsored venue (e.g. conferences) for the purpose of providing an annual review and discussion forum in which updates and changes to the model code and guidance documents can occur in order to facilitate its mission as a living document.
- The name of the document was changed to Model Code Framework for the Decentralized Wastewater Infrastructure.

Officer Nominations

Jerry Stonebridge presented the Nominations Committee recommendations for 2007 officers: President—Jerry Stonebridge; Vice President/President Elect—Tom Groves; Secretary/Treasurer—Brian McQuestion. Board Nominations are still being obtained.

Financial Management

An update on NOWRA finances of income/expenses was presented by B. McQuestion who also addressed how financial planning occurs, planned category changes for 2007, and an explanation of how spreadsheet information is viewed.

Presentation of Preliminary Draft Policy & Procedures Manual

The manual outline was viewed by B. McQuestion who stated that a more complete document will be provided to the Board in July. R. Suchecki stated that Board members need to read documents sent to them and prioritize what the Board needs to know by highlighting sections.

Recommended by-law changes

The required changes will be provided by the executive director with an update in July and formal recommendations in August—to coincide with the the new governance structure for 501 C(3). ■

NOWRA'S NEXT
(face to face)
BOARD MEETING

August 27, 2006
Adam's Mark Hotel
Denver, Colorado
as part of
NOWRA's 15th Annual
Technical Education Conference
and Exposition

NOWRA IN ACTION Membership Update

During the past four months, NOWRA headquarters has worked with its member states in getting the new membership database updated, the 2006 directory established and information out to the overall membership about NOWRA's benefits and services. As we go to press, all 4,607 active members have been sent their NOWRA membership card, instructions for updating member profiles, insurance and office depot business discount program information, and information about NOWRA's 2006 conference.

As of June 30th, the NOWRA membership is represented in 32 states.

State Group	Enrollment	Percentage of NOWRA Membership
NOWRA	474	9.8%
Iowa Onsite Waste Water Assoc.	435	9.4%
Missouri Smallflows Organization	395	8.6%
Florida Onsite Wastewater Assoc.	382	8.3%
Texas On-Site Wastewater Assoc.	367	8.0%
Washington On-Site Sewage Assoc.	340	7.4%
California Onsite Water Recycling Assoc.	255	5.5%
Wisconsin Onsite Wastewater Recycling Assoc.	258	5.6%
Delaware On-site Wastewater Recycling Assoc.	240	5.2%
Ohio Onsite Wastewater Assoc.	221	4.8%
Virginia Onsite Wastewater Recycling Assoc.	198	4.3%
Ontario Onsite Wastewater Assoc.	196	4.3%
Maryland Onsite Professionals Assoc.	158	3.4%
Colorado Professionals in Onsite Wastewater	142	3.1%
Kansas Small Flows Association	120	2.6%
Indiana Onsite Waste Water Professional's Assoc.	117	2.5%
Michigan Onsite Wastewater Recycling Assoc.	91	2.0%
Tennessee Onsite Wastewater Assoc.	65	1.4%
Nebraska On-Site Waste Water Assoc.	63	1.4%
Pennsylvania Onsite Wastewater Recycling Assoc.	61	1.3%
Yankee Onsite Wastewater Assoc.*	47	1.0%
Concrete Precasters Assoc. of Ontario	34	0.7%
Carolina Onsite Wastewater Assoc. (North & South)	36	0.8%
Wisconsin Precast Concrete Assoc.	32	0.7%
Arizona Onsite Wastewater Assoc.	23	0.5%

Note: Total percentage is greater than 100% because some members belong to more than one state group.

*Yankee includes Massachusetts, Rhode Island, New Hampshire, Vermont, and Maine.

Majority of NOWRA Members Installers

When joining NOWRA or an affiliated state chapter, members are asked to choose up to five professional categories in which they wish to be identified. A breakdown of the information collected is shown below.

Member Category	Percent of Total Members
Installer	26
Contractor	13
Government/Regulatory Official	11
System Designer	7
Consulting Engineer	6
Equipment Manufacturer	5
Vendor/Product Supplier	5
Service Provider	4
Maintenance Provider	3
Other Interested Party	3
System Inspector	3
Site Evaluator	2
Soil Tester	2
Soil Scientist	2
Tank Manufacturer/Supplier	1
Pumper	1
Operation/Maintenance	1
Academic/Educator	1
Soil Evaluator	1
Registered Sanitarian	1
Operator	1
Environmentalist	0.5
Researcher	0.3
Builder/Developer	0.3
Waste Transporter	0.3
Compliance Monitor	0.2
Laboratory Services Provider	0.1
Realty/Mortgage Service Provider	0.1
Student	0.1

Note: Total percentage is greater than 100% because some members are assigned to more than one professional category. Also, 25% of NOWRA's membership have not yet submitted information about their professional or "Member Category."

NOWRA IN ACTION

NOWRA/WQA Joint Water Softener Task Force Update

During the June 28, 2006 meeting of the NOWRA/Water Quality Association (WQA) Task Force, participants reached agreement on the final approach to the proposed surveys of conventional septic tanks and Advanced Treatment Units (ATU). The purpose of the surveys is to determine and understand more clearly through scientific research the effects of water softener chemicals on these systems. This controversial issue has become heightened in many states where regulators are attempting to impose constraints on the use of softeners in septic systems. Now into its second year of collaboration, this team includes Matt Byers, Bruce Lesikar, Tom Bruursema, Dennis Rupert, Jim Converse, D.J. Shannahan, Carlyn Meyer, Russ Harrison, Bob Boerner, Kelley Thompson, Paul Friot, Byron Miller, Ron Suchecki, Linda Bonner, and Don Dammel.

The task force met earlier this year in Rosemont, ILL during the WQA annual conference at which time, they formulated the overall efforts for this study and developed the initial survey input sheet. Agreement on the updated sheet was reached in this meeting, which now includes a section for iron-bearing sites as well as readings for chlorine in the incoming water. Four survey sites have been decided upon for the initial studies. They are located in central Texas, southern Indiana, the Twin Cities area in Minnesota and Delaware.

It is agreed that a number of "control" septic systems will be used for the study and that all the septic-softener systems must be at least 2 years old with a general rule being no older than 15 years. The task force also decided to use two basic testing protocols. First, analyzing the incoming water before treatment, and the tap or treated water; and then sampling the water coming from the treatment tank. Each test included in the survey protocol includes specifics about the preservation of wastewater to ensure accuracy and sample stability. The estimated cost of the studies, as of this time, is a total of $10,000 with an estimate of $200/test. Additional discussions will continue on updated costs as the number and location of study sites progresses and an investigation of funding is pursued.

Task Force members will present an update on this research during the planned Water Softener Symposium at the NOWRA 15th Annual Conference in Denver, CO, on Wednesday, August 30, 2006, from 1 to 4 p.m. Joe Harrison and Bob Boerner, representing the WQA, will make presentations as to how softeners work, their prevalence, DIR regeneration efficiency, the need for periodic maintenance and a background on onsite systems. At the March Water Quality Conference in Rosemont, Ill, NOWRA members presented a ½ day session about the operations of onsite systems.

Preparing this information for the conference, however, requires that a series of action steps are accomplished in order to present the preliminary results at the Denver meeting. These activities include:

1. Agreeing on the final version of the Evaluation Form by July 7.
2. Finalizing initial field test sites by July 14.
3. Establishing a protocol for each step in the onsite testing process as well as the lab methodology by July 21.
4. Conducting a conference call to discuss, agree upon and finalize this work by July 28.
5. Performing the first field evaluation by August 11, and
6. Receiving lab results and completing the Evaluation Surveys by August 25.

The group is divided into core teams for each test location.

- **Texas Team**—Dr. Bruce Lesikar, Ron Suchecki, Bob Boerner and Joe Harrison
- **Indiana Team**—Matt Byers and Joe Harrison
- **Delaware Team**—DJ Shannahan, Joe Harrison and Linda Bonner
- **Minnesota Team**—Dr. Jim Converse and Joe Harrison

As the work progresses other NOWRA and WQA members will be added to each site location as availability is indicated. The task force members plan to meet in Denver prior to the symposium and at that time, determine the location of the next field test sites to be initiated on or about September 15. Continued updates will be posted on both the NOWRA and WQA websites. ■

NOTICE OF NOWRA 2006 RECOMMENDED BYLAW CHANGES

As part of the review of its governance and development of the Education and Research Foundation, the NOWRA Board of Directors is reviewing and making changes to its existing By-Laws. This notice is to inform NOWRA members of this process and that copy of the recommended changes has been placed on the NOWRA website for members review and input. Additional questions, please contact the NOWRA office either by phone or email.

NOWRA IN ACTION

Complete Member Profile Helps Consumers Find Your Goods and Services on *Septic Locator*

A large number of NOWRA members do not have complete profiles on record. With member information now being posted on the new Septic Locator, incomplete member profiles will not benefit you as consumers look to Septic Locator to find onsite goods and services. For example, 25% of NOWRA members have yet to assign themselves to a professional or "Membership Category." If a homeowner goes to Septic Locator seeking specific onsite services and conducts a zip code search, while they will see some information about you and your company, the entry will not specify whether you are an installer or system designer, etc.

Members Encouraged to Update Profiles Online

To update your online profile, simply go to NOWRA's website, www.nowra.org, and click on "Sign In" located in the top right corner of the home page. Login using your username and password and then select "Click Here to Modify Your Profile," when you are finished select the "submit" button at the bottom of the page.

To modify information about the products and services you offer, select the state from the drop down box (you are a member of each state listed). Select the options and then click the "Submit Updates" button. As soon as you complete this process your updates and changes will appear on Septic Locator. As always, if you need any assistance with this process please contact the NOWRA office at 1-800-966-2942.

Septic Locator Upgrade Options Available

A basic listing on Septic Locator is free to all NOWRA members, but enhanced listings—which help your business stand out from the competition—are available for a low annual fee. With the Enhanced Listing option, which costs $150 per year, your information will include a black and white logo, and a 150 word company description, a hyperlinked email, and the option to have eight additional products and services listed. A Premium Listing, which costs $300 per year, includes a hyperlink to your company website, a full color logo, a 300 word company description, one color photo, an email hyperlink and an unlimited number of product and services. To sign up for the Septic Locator upgrades please call NOWRA at 1-800-966-2942. ■

Members without Professional Category	25%
Members without Email	37%
Members without Products or Services	96%

Membership Benefit Alert!

NOWRA National Onsite Wastewater Recycling Association

ASSOCIATION Health PROGRAMS

Receive Enhanced Insurance Benefits for Yourself, Your Family for Both Full & Part-Time Employees!

Health Savings Accounts

Dental & Vision

Disability Income/Critical Illness

Annuities

Long-Term Care Insurance

Health Insurance

Individuals & Families

Groups

Student Health Plans

Medicare Supplements

International Travel Insurance

Health Savings Accounts

Individuals/Groups

Home Health Care

Assisted Living

Nursing Home Care

Life Insurance

Term 5, 10, 20, 25, 30, Age 95

Universal Life

Survivorship (2nd to Die)

Key Person

Executive Benefit Life

Retirement & Financial Services

On Insurance Premiums!

Rates and Availability May Vary By State.

NOWRA Association Health Programs
6319 W. 110th Street, Overland Park, Kansas 66211
Phone: (913) 341-2868 Toll Free: (888) 450-3040 Fax: (913) 341-2803
Email: help@associationpros.com
Website: www.associationpros.com/assoc/NOWRA

National Onsite Wastewater Recycling Association

Association Health Programs
Proposal Request

____ Health ____ Long-Term Care ____ Dental/Vision

____ Life ____ Disability Income/Critical Illness ____ Other

Member Information

Member Name: _____Member #_____

Address: _____

City: _____ State: _____ Zip: _____ County: _____

Phone: _____ Fax: _____

Email: _____

Current Insurance

Carrier: _____ Current Premium: _____

Deductible: _____ Maximum Out of Pocket: _____

Office Visit Copay: _____ Prescription Copay: _____

Primary Insured

Date of Birth: _____ Age: _____

Gender: Male Female Tobacco User: Yes No

Height: _____ Weight: _____

Occupation: _____

Spouse Information (if to be insured)

Date of Birth: _____ Age: _____

Gender: Male Female Tobacco User: Yes No

Height: _____ Weight: _____

Occupation: _____

Number of Children & Ages (if to be insured): _____

Medical Information (If "yes" to ANY question, please explain in box below.)

Has any proposed insured been treated or diagnosed for the following? If yes, please explain in box below.

Yes	No	Condition	Yes	No	Condition
____	____	Cancer/Tumor	____	____	Heart Conditions//Stroke
____	____	Diabetes	____	____	Hypertension/Blood Pressure
____	____	Alcohol/Drug Abuse	____	____	Cholesterol
____	____	Liver Disease	____	____	Bones/Joints/Muscles
____	____	Respiratory Conditions/Allergies	____	____	Kidney/Urinary Tract/Bladder
____	____	Gallbladder	____	____	Neurological Condition
____	____	Digestive/Stomach	____	____	Psychological Conditions
____	____	Immune System			

Does any proposed insured take any prescription medications? Yes No

Is any proposed insured currently pregnant? Yes No

Insured Name	Condition/Diagnosis	Medications/Treatment	Dates	Treatment Ongoing?
				Yes No
				Yes No
				Yes No

I release the information on this form to be used strictly for obtaining health insurance quotes for myself or my company and understand it will not be shared with any other entity.

Member Signature Required: _____

Please mail, fax or e-mail completed form to:

6319 W 110th Street · Overland Park, KS 66211 · Fax (913) 341-2803 · Email help@associationpros.com

SPECIAL NOTICE

NOWRA 2007-2009 Board of Director Elections

NOWRA ByLaws (Article V, Section 8) require that members annually elect individuals to fill identified vacant sector representation positions on the Board of Directors. Once elected by the membership, these individuals assume office for a three-year term on December 1, 2006**.**

This letter provides the official membership announcement of the six candidates, their profiles and responses to key questions articulating their desire to serve as a NOWRA Board Member. Instructions for voting in the NOWRA 2006 Elections follow. This announcement and information has also been placed on NOWRA's website and will be sent to members via E-Communications. By casting your member vote, the winners will fill the vacant sector positions and will serve as a Board member for 2007, 2008, and 2009.

On November 30, 2006, the following individuals will complete their term of office: Tim Frank (Past-President), Ronald Suchecki (Supplier/Vendor), Albert Schnitkey, (Replacement-Engineer); and Eugene Bassett (Installer/ Contractor). The Nominations Committee recommended, and the Board of Directors has approved the slate of candidates that include: William "Pres" Allinder, Brian McQuestion, Kevin Peters, Al Schnitkey, Doug Jatko, and J.R. Inman. The Nominations Committee has recommended the following individuals to serve as 2007–2009 NOWRA officers. Jerry Stonebridge, as President; Thomas Groves, Vice President/President Elect; Brian McQuestion, Secretary-Treasurer, and Raymond Peat, Past President.

On July 18th, the NOWRA Board of Directors approved the following change to the NOWRA ByLaws regarding the election process for NOWRA Board members and the date of their terms:

Article IV – Membership. Section 8. Board Elections
Candidates for the NOWRA Board of Directors shall be elected by ballot each year 30 days prior to the date of the Board of Directors annual planning meeting (December of each calendar year). A listing of Board of Director candidate qualifications, background, and position statements shall be provided to all current members at least 90 days prior to the date either through the NOWRA Onsite Journal, published on NOWRA's website or other means in which a date can be documented. Receipt of all ballots with a vote must be postmarked or faxed to the NOWRA headquarters office, by October 31 of each calendar year. Each voting member is entitled to cast one vote by official ballot for as many persons as there are directors to be elected upon the annual ballot. Returned ballots that are either mailed or faxed to the NOWRA corporate office prior to the deadline date will also allow for the casting of votes for write-in candidates. Directors are elected by a plurality of the votes cast for their respective sectors, and shall assume office at the annual Board of Directors Planning meeting occurring in the year they are elected. A director cannot be re-elected to the board for one year after having completed a full three-year term, unless appointed to fill the vacancy of an unexpired term.

NOWRA Board of Directors
VOTING INSTRUCTIONS

Use the ballot on page 17 to vote for the candidates of your choice.

Mail the ballot to:

NOWRA, P.O. Box 1270, Edgewater, MD 21037-1270

or faxed it to 410-798-5741.

All ballots must be received with either a fax date or postmarked by midnight October 31, 2006 in order to be counted. No duplicate votes are permitted. An individual member can only vote once—even if multiple memberships are held in different states.

EACH BALLOT MUST LIST THE MEMBERSHIP NUMBER OF THE VOTER.

NOWRA's annual membership meeting, Thursday, August 31, 2006 – 8:00 a.m.
Adam's Mark Hotel, Denver, Colorado.

Board of Directors Candidate Profiles

Candidate: BRIAN MCQUESTION

Board Category: Installer/Contractor

Profession, Position & Title: Controller and Sales Manager, Lake Shore Burial Vault Co. and in charge of new product development, safety management and quality control programs. Lake Shore Burial Vaults Co manufactures, distributes and installs septic tanks and related products in southeastern Wisconsin. Holds a B.A. in Accounting and MIS from University of Wisconsin – Milwaukee.

Years within onsite industry and/or relevant expertise and credentials: 15 years of experience in the onsite industry (in 2006). Served on Board of Directors of the Wisconsin Onsite Wastewater Recycling Association for the past 6 years, and as President for the past 4 years. Experience in lobbying local and state government officials, fund raising, managing the day-to-day operations of the Association and budgeting. Holds a POWTS maintainers license in the state of Wisconsin. Involved in the National Performance Based Code Project.

Commitment to Board Position: I am willing to serve on the national board for the same reason I serve on Wisconsin's. It is imperative our industry continues to organize our efforts in lobbying at the state and federal level. In the last ten years the regulatory environment our industry operates in has changed dramatically. We are no longer dealing with fragmented regulators. There is a drive to regulate our industry on a consistent basis across the country. Code developments in one state can and will affect other areas. NOWRA needs to stay ahead of the curve and ensure our members have a voice in these changes.

Industry Contribution: I believe I could serve best in helping NOWRA develop the state organizations. Wisconsin offers an outstanding model of how a state organization can function. We provide continuing education credits, an annual technical seminar, newsletter and web site. Most importantly WOWRA has a lobbyist on retainer in the state capital. We have a voice on all regulations that affect our industry. Our members sit in advisory boards that recommend changes to our state code. WOWRA was a crucial voice in passing the plumbing code changes in 2000 that allowed for statewide installation and performance standards. We continue to work with the state and local regulators modifying the code to meet changing market conditions. I believe our experiences could greatly benefit the development of new associations in other states.

Direction for NOWRA as an Industry Leader: State organization development is the key to success for NOWRA. WOWRA pays dues to NOWRA for all of our members. If we could organize the states properly, this would produce a windfall for NOWRA. I also believe NOWRA would be better able to serve the industry with feedback from all the states installers, plumbers and other professionals. I see NOWRA as crucial to presenting a united front in Washington D.C. as the EPA continues to expand its role in our industry.

Critical Issue(s) NOWRA should Address: I am also very concerned that we need to watch how the EPA begins to regulate our industry. I fear the day when the EPA dictates to the states the manner and method that OWTS are installed. These are decisions our industry must have a voice. NOWRA is best vehicle to provide that voice. I have also found that outlining the intrusion of regulators into our industry has been a great membership-recruiting tool.

Candidate: AL SCHNITKEY

Board Category: Supplier/Vendor

Profession, Position & Title: Vice President, Ring Industrial Group (3 years).

Years within onsite industry; and/or relevant expertise and credentials: Over 25 years in the construction industry and legal community with management roles in the aggregate, ready mix concrete, cement and geosynthetic industries. Responsible for sales, marketing, regulatory affairs and operations throughout career history. Licensed attorney in the State of Ohio (inactive status).

Commitment to Board Position: The onsite industry is in a rapid state of transformation. Over the next 10 to 15 years I anticipate our industry will see significant changes in state and national regulations. I would like to help have an impact in assuring that the industry takes its rightful place as a long-term economic solution of handling waste in the United States. NOWRA is a critical component to that effort. A unified organization will allow the industry to speak with one voice on critical issues in Washington and state capitals across the country.

Specific Area of Interest

- *Conferences and Industry Education*— Will be involved in the planning process and as a team member on all necessary committees.
- *Regulatory and Lobbying Efforts to promote the onsite industry*— Contribute in strategic planning process as well as working/leading to completing the strategic plan.
- *Working with the State Associations to promote onsite solutions in the market* —Will be an active member of my home state organization as well as working with and presenting to state associations as necessary. I will help grow the membership of all State Associations with the goal of having all state organizations join NOWRA.

Industry Contribution

- *Continuing to improve benefits and services to the membership*—The current staff and Board have done a great job in bringing new value-added benefits to the membership (Insurance Program and Septic Locator are just two examples) we need to continue to search for and develop additional opportunities.
- *Education*—The focus on education needs to be two pronged:
  1. The installer community should be filled with programs similar to the NOWRA Installer Academy held in Las Vegas each December. The programs should be encouraged to grow and then be offered all over the country.
  2. Focus should be placed on gearing up education towards the Regulatory, Political and Engineering communities.

Critical Issue (s) and Direction for NOWRA as an Industry Leader: It is critical for the long term success of our members that the truth and true value of onsite solutions be demonstrated to policy officials, the engineering community and the public. Several influential forces are opposed to seeing the continued expansion and success of our industry. Most of this opposition is well funded by organizations that would benefit from our elimination. We need to insure the acceptance and continued growth of onsite industry solutions to support our members.

Candidate: JR INMAN

Board Category: Maintenance/Service Provider

Profession, Position & Title: General Manager, Northwest Cascade Inc (Flohawks). Tracks information regarding O&M and sampling on aerobic and other alternative high waste strength systems Flohawks has installed all over the nation. Flohawks performs related onsite service and maintenance around Western Washington and will perform over 33,000 jobs in 2006.

Years within onsite industry; and/or relevant expertise and credentials: Worked with NW Cascade for over 28 years and in the on-site industry for 20 years. Currently holds Installer's license, O&M Specialist licenses and Pumper licenses in many counties in the State of Washington. Serve as Past President of Washington On-Site Sewage Association (WOSSA) and as Vice President, President and Treasurer for 2 terms. Other Board experience includes Education, Scholarship and Grant & Conference committees. Has worked with the board to lead the legislative group in 2005 for bills that affect the on-site industry in

continued on page 19

ELECTION BALLOT FOR THE NOWRA 2007-2009 BOARD OF DIRECTORS

ALL BALLOTS must be received and dated by a postmark or fax by Midnight, September 30, 2006. All Ballots must have a membership number and signature; only one vote per individual/member. Individuals with multiple memberships in states can only vote once. All ballots remain confidential. Ballots that are not completed properly with a valid 2006 membership number and dated will not be counted!

PLEASE FOLD & MAIL THIS BALLOT, OR FAX IT TO - 410-798-5741

Installer/Contractor Sector - Vote for one

_____ Brian McQuestion _____ Kevin Peters eters

_____ (Write-in Candidate) date)

Regulator Sector - Vote for one

_____William "Pres" Allinder

_____ (Write-in Candidate) date)

Supplier/Vendor Sector- Vote for one

_____ Al Schnitkey _____ Doug Jatcko atcko

_____ (Write-in Candidate) date)

Maintenance/Service Provider - Sector - Vote for one

_____ JR Inman

_____ (Write-in Candidate) date)

MUST BE COMPLETED, BEFORE BALLOT CAN BE COUNTED. NO DUPLICATE BALLOTS ARE PERMITTED. ALL BALLOTS REMAIN CONFIDENTIAL.

Membership Number: r: _____

Signature: e: _____

Place
Stamp
Here

NATIONAL ONSITE WASTEWATER RECYCLING ASSOCIATION
P.O. BOX 1270
EDGEWATER, MARYLAND 21037-1270

2006 ELECTION BALLOT

Washington. Volunteered annually to teach classes for WOSSA and is an authorized instructor for NWOTC in Basics of On-site Maintenance 101 & 102, Trouble Shooting, Pumper 101, homeowners and realtor education.

Specific areas of interest on the Board and contribution: I have worked on many committees and am willing to work on any assignment needed. I believe I would best be suited for a committee like Conference, Finance or State leaders. I am also aware of the Institutes of Learning Certification Program and see a need for it to move forward.

Contributions to be achieved are illustrated in working with our state organization (WOSSA), and should speak well to my ability to work with others in raising standards and quality in the organization while retaining money to keep us sustained into the future. I would recommend John Thomas and Jerry Stonebridge as a personal reference to speak to my willingness and ability to work with or lead a group with success.

Willingness to serve: The company that I work for believes in giving back to the industry and community that has supported us so well. We also believe you can only get back as much as you are willing to give. We continue to work on City, County and State levels. As a company that works all over the nation it only makes sense to support our national industry group.

Perspective on the direction NOWRA should go to increase its leadership role:

1. Support and promotion of the industry on a National level.
2. Program development on a national level that supports state organizations; increase education capacity, regulatory changes and other best practices & facilitate debates for wastewater issues and programs.
3. We need to find a niche or role to fill to become financially sound and develop sustainable programs that continues to educate, influence and benefit all.

C**ritical issues the NOWRA Board should be addressing for Industry?**

1. Make NOWRA the recognized National organization in our industry.
2. Develop National Education capacity to transfer information / knowledge.
3. Help with organizations at the state levels to effect change.
4. Development and certification of promotion of the RME concept laid out by the EPA for establishment of private utility entities.

Candidate: KEVIN PETERS

Board Category: Installer/Contractor

Profession, Position & Title: Director of Operations, KPX Septic Specialists.

Commitment to Board Position: NOWRA is an outstanding organization and I am proud to be part of it. I am honored for the consideration and will work diligently for the Association if elected. As installer/contractor for several years I am more passionate about our environment than ever. I am very proud of the NOWRA committee's work together. As an active member in NOWRA and small business owner/operator in the wastewater industry, I welcome the nomination for the position.

I am very aware of the obligation to what would be expected of me as a Board of Director. I would take my responsibilities very serious and would represent the members of NOWRA to the best of abilities. My purpose of fulfilling this position is for the future of our industry and the good health of our country. There is one thing I can bring to the NOWRA Board of Directors that no one else can and that is Kevin Peters.

Specific Area of Interest: I am interested in the NOWRA board because I believe I can be a great representative for the installer/contractor. I have a clear vision of where our industry was, where we are at and I would like the chance help direct where we go. I want to quick asking what this industry can do for me but what can I do for the industry.

Critical Issue(s): My perspectives on the direction of NOWRA is that there needs to be more requirements for operations and maintenance on septic systems..

Direction for NOWRA as an Industry Leader: There are many existing problems around the lakes in South MO that require action. As an example, offer classes to help handle the problems, such as "How to start small businesses or help encourage companies to grow classes. There are dollars available through the government to help start companies why not educate our industry to be open-ended minded and start marketing to other potential customers. Not "this is how we done it for years". Come up with ways to determine how many septic tanks are in our state, county, zip code through surveys, auto-cad or GIS locations of systems.

Candidate: DOUG JATCKO

Board Category: Supplier/Vendor

Profession, Position & Title: Owner and President, Front Range Precast Concrete, Inc. FRPC manufactures FLXX® watertight concrete tanks and cisterns.

Years within Onsite Industry and relevant expertise: I have nearly 20 years onsite experience and am an active member of Colorado Environmental Health Association, Wyoming Environmental Health Association, and Colorado Professionals in Onsite Wastewater. August 2006 will mark the end of four years on the Colorado Environmental Health Association's board. During that time I have been instrumental in growing the industry sector of the organization, thereby bridging the gap that often exists between regulators and industry suppliers and manufacturers. I have contributed articles to CEHA's newsletter, participated in their educational conference, as well as CPOW's, and attended numerous onsite trainings and seminars at both the state and national level.

Front Range Precast Concrete personally hosted NOWRA committee members to a plant tour and demonstration of our watertight production technology (June 2004) and has conducted voluntary watertight tests for NOWRA (per Bob Pickney's instructions) as well as for the City of Boulder and Boulder County.

CORE Study (Colorado Onsite Research & Evaluation) Additionally, Front Range Precast was recently awarded a grant from Jefferson County Health Department to assess, evaluate and make recommendations for developing onsite wastewater standards and performance regulations. This study will be conducted over a 36-month period and will conclude with a summary document that will serve as a comprehensive guide for regulatory decisions in the onsite industry.

Commitment to Board: I am pursuing a seat on NOWRA's board because I want to fully engage in increasing the professionalism of the onsite wastewater industry and play an active role in promoting regulations and standards that will help to protect citizens and their water resources across the country.

I am willing to serve on the board and fulfill the responsibilities of the position because I believe in the positive changes our industry is experiencing and want to help foster more of it. Front Range Precast regularly challenges the notion that expecting concrete tanks to be watertight is expecting too much.

Industry Contribution: I personally championed the design and engineering of a patented concrete-handling machine (HALO) that enables us to produce truly watertight tanks. I have been a hands-on owner,

have extensive filed experience and regularly discourse with engineers and onsite system designers about the best septic system solution for a range of situations. In addition to the development of HALO technology, I have grown our product line to include low-profile septic tanks that address the challenges of Colorado's rugged soil environments. Additionally, I have become the Colorado distributor of HOOT Aerobic treatment systems so that we can provide product solutions for a range of customer and project requirements. It is truly the science of wastewater and the changing needs of community members that have driven these product changes. Also, I have published or contributed to articles on the capabilities of HALO technology and the importance of watertight septic tanks in the onsite industry in *PointSource, Precast Concrete Association of America, MC Magazine, Concrete Toady* and *Boulder County Business Report.* As a longstanding member of the National Precast Concrete Association, I was on the critical review board for their septic tank committee's report on watertightness.

Direction for NOWRA as an Industry Leader/Critical Issue (s): As a board member, I would like to guide NOWRA in promoting the belief that the onsite industry does not need to tolerate anything less than maximum consumer and groundwater protection. It is my opinion that NOWRA should embrace this demand for quality and assertively drive this message through its membership and throughout the industry at every opportunity it can find. This is a critical issue for NOWRA to address to its members, as well as to related educational institutions and industries, municipal officials and regulators, media resources, and any other outlet willing to listen! In addition, my particular area of interest is septic tanks. As a board member I would commit myself to the relentless pursuit of promoting watertight concrete tanks.

Candidate: WILLIAM "PRES" ALLINDER

Board Category: Regulator

Position, Title, Profession: Director of the Bureau of Environmental Services of the Alabama Department of Public Health (ADPH) for ten years. The Bureau is the ADPH branch that, along with several other functions, regulates all Onsite Sewer Systems in Alabama that have a design flow rate less than 10,000 gallons per day. I am a Professional Engineer and Professional Land Surveyor.

Industry Expertise: In addition to my public health experience, I practiced in the private engineering field for seven years and was the design and construction engineer for a major state agency for sixteen years. A major portion of my non Public Health career has been focused toward onsite and environmental engineering.

Commitment to Board: The State of Alabama has greatly benefited with its involvement in NOWRA and I look forward to being a part of its leadership in the coming years. In particular, I am very interested in working within NOWRA with the issues surrounding the decentralized, or cluster, systems that are rapidly becoming the development tool of choice. ■

NOWRA Women in Action – PART II

Barbara Bradley

President, California Onsite Wastewater Association

Barbara Bradley became an environmental engineer because she wanted to make a difference. Her passion for the environment led her to the solid/municipal waste treatment industry and it was here that her calling began to take shape. Concerned that treated wastewater was simply being removed from the system so that it could never be used again, Barbara realized recycling the water would be much more efficient. However, the costs of recycling wastewater were high because it already traveled through an extensive system of pipelines to be treated – sending it back through the same routes to be reused would never be cost-efficient. In order to recycle the wastewater, it would need to stay where it's used.

As the President of Advanced Onsite Systems in Escondido, CA, Ms. Bradley is responsible for a variety of tasks ranging from client guidance and interfacing with regulatory agencies to writing proposals and keeping up with the business side of things. She enjoys the technical challenges of her job and the fact that she is independent in her work. She has the opportunity to meet and network with a number of people in the industry and the idea that she and her colleagues are "mavericks" of a sort make it even more fun.

Bradley says there are plenty of opportunities for women in the onsite wastewater industry but that there are not many women in the field, especially in the number of female engineers. She has not experienced any resistance because of her sex and instead has found equal treatment for all.

Leadership Accomplishments

Barbara does not name one single accomplishment as her greatest achievement but instead feels that simply being a part of the ongoing process of progress in the industry is most important to her. She takes pride in protecting our water resources and adding to a small piece of history while doing so.

Priority Issue(s)

The most pressing issue Bradley sees in the onsite industry is simply that there are not enough people in the field, especially in California. There is little competition in the private sector, regulators are often short-handed and there are few environmental engineers or health specialists. While this may create job security for those who are active in the industry, it is a large impediment to progress, that any benefits are off-set. Bradley also feels the industry needs to update mechanisms for regulation on an ongoing basis. Otherwise it becomes stuck behind the times and everyone suffers – property owners, designers and regulators.

Getting People Involved

Ms. Bradley says there has been modest success involving people in the onsite industry in California and that things are slowly moving forward. The California Onsite Wastewater Association (COWRA) is still a juvenile association with a lot of room for more involvement. She especially hopes to attract young persons to the industry and COWRA's next conference will be specifically geared toward doing so. Bradley also hopes that NOWRA will assist by taking the lead in federal lobbying because only they, as a national group, can keep watch from that level.

Jean Caudill

Former NOWRA Board Member and Co-chair of the Model Code Committee

Jean Caudill currently works for the Ohio Department of Health (ODH) in the Residential Water and Sewage Program. She began her career in the onsite industry as a sanitarian working in the public health sector in Clermont County, Ohio. As part of the public health nuisance program, Jean quickly became familiar with failing household sewage systems. From there, Caudill became the Director of the Water and Waste Programs at the Clermont County General Health District but became frustrated with the antiquated household sewage rules in Ohio. After nine years at the health district, she took a job at the ODH in 1998, where she remains as one of the two staff members working in the Household Sewage program. The other being her colleague, Tom Grigsby.

Jean enjoys the challenges of her work and her contribution to the effort to bring state-level regulatory change to the management of Ohio's onsite wastewater infrastructure. During the years, she has not noticed any barriers in professional advancement opportunities for women, either at the local or state level in Ohio's public sector onsite arena. She has, however, observed in recent years a loss of capable onsite professionals in the public sector, particularly at the local level, to better, higher-paying jobs in the private sector.

Leadership Accomplishments

Caudill is thankful for the opportunity to participate in NOWRA's work and travel to the conferences, as it has

enabled her to make and keep valuable contacts with other industry professionals. She also attends many of the annual NSFC State Onsite Regulators' Conferences and made contacts with professionals from other state onsite programs. Her time on the NOWRA Board of Directors; as the NOWRA representative on the National Decentralized Water Resources Capacity Development Project; and as the vice chair of the NOWRA Model Performance Code have been invaluable experiences in the ongoing work of the decentralized wastewater industry.

Priority Issue(s)

Ms. Caudill is currently very deeply involved with the development and implementation of new state regulations for onsite sewage treatment systems in Ohio. This is a particularly large endeavor as legislation and new rules have been postponed for 30 years in Ohio. It is important to make this process work for the citizens of Ohio through assurance of public health and environmental protection while still minimizing costs. Caudill recognizes the support and leadership of Ohio Senator Tom Niehaus who has been working with the ODH director of health, Dr. J. Nick Baird toward the implementation of the new rules.

Getting People Involved

The Ohio Onsite Wastewater Association (OOWA) has increased its membership every year since its formation in 1999. Having served on the Board of Directors, Caudill has seen first hand the growth and development of OOWA as a professional association. She gives much credit to NOWRA and its partnership with OOWA in bringing educational opportunities to the industry—opportunities that are critical for the support of industry professionals in Ohio.

Sara Christopherson

NOWRA Board Member and Education Committee Chairperson

MOWRA (Minnesota Onsite Wastewater Recycling Association) Board Member and Education Committee Chairperson

Currently as Extension Specialist with the University of Minnesota, Sara Christopherson began her career in the onsite industry 10 years ago, while a student with the Pollution and Control Agency, the Minnesota state regulatory group. She was just looking for engineering experience while getting her undergraduate degree in Biosystems and Agricultural engineering, which also happened to deal with septic systems. This entry led to her Master's degree in Water Resource Science and her current position at the University of Minnesota. While working full time she is currently pursuing her PhD in Water Resource Science. In her work at the University, Sara is specifically involved in the onsite sewage treatment program (http://septic.umn.edu) where she provides education and training to septic installers, designers, pumpers and other onsite industry professionals. She also provides technical assistance to a variety of people, from engineers and professionals to homeowners and communities. Sara especially enjoys this interaction and the opportunity to communicate scientific material to the public. She is also responsible for coordinating the onsite research program

Christopherson says she believes the opportunities for women are equal to those of men in the onsite industry. She admits that at first her audience was a bit tough on her but once they realized she was educated in the industry, she found no barriers whatsoever. Sara believes the decentralized industry is open for anyone willing to work hard and put forth the effort. There is much opportunity for growth, especially in the areas of technology and research.

Leadership Accomplishments

Sara feels her greatest accomplishment as a professional woman in the onsite industry has been improving the onsite program at the University of Minnesota. This has included developing the program's website, updating training materials and further developing key program partnerships. She has recently worked hard with NOWRA to plan the educational conferences and programs. In the past several years she has assisted in obtaining two research and one education grants.

Priority Issue(s)

In her state of Minnesota, Ms. Christopherson feels it's very important to ensure that properly trained and skilled people with the right credentials are doing the right work. There is currently a rule change underway, including new nitrogen requirements for the state, so ensuring proper utilization of skills becomes essential. Within the industry as a whole, Sara finds it is important to assure the public that the technology within the onsite wastewater industry is equivalent to other methods of wastewater treatment.

Getting People Involved

Sara credits much of Minnesota's success in the onsite wastewater industry to the large number of lakes in the region, causing many people to care about water quality issues. With the wastewater industry very large in Minnesota, there is also much septic work to be had, which also requires a great deal of training for industry professionals. Sara's specific program and the University have been involved in educational training for 30 years so there is a substantial history to the industry as well. She feels it is important for NOWRA to emphasize practitioner-related training and to develop educational materials to support this effort.

Joelle Wirth

Environmental Health Specialist, Coconino County Health Department

Joelle Wirth began her career in the onsite industry 19 years ago in the public health sector. Her objective was to use her degree in an interesting area (and, admittedly, to stay near the Grand Canyon to take advantage of hiking). Today she still works in Arizona with the Coconino County Health Department as an Environmental Health Specialist where she is involved in the permitting process for onsite systems based on the protection of groundwater. In addition to protecting public groundwater via permits, she conducts site evaluations, responds to public complaints and deals with contractors, installers and realtors to ensure compliance with state rules. Wirth is the Coconino County Supervisor and one of three employees involved in these processes. Since it is the second largest county in the nation, she stays very busy!

Joelle's favorite aspect of her job is simply the fact that she gets to give something back to the community by protecting its groundwater supplies and the environment in general. She is on the forefront in county regulation of development and helps decide the most logical way for growthe to occur. Because water is such a valuable resource in Arizona, controlled growth is even more important. Wirth works with statewide programs in onsite that require working with a variety of people in the industry, from home owners, realtors, contractors to regulators and politicians.

Ms. Wirth says there are definitely equal opportunities for women in the onsite industry and that she was never treated differently because she's a woman. In fact, she feels that women are actually geared toward certain aspects of the onsite industry more so than men. She's noticed many more women in privatized roles in Arizona and attributes this to that fact that in general women are more adept at communicating than men and so have a stronger hold on the customer service aspect of the job.

Leadership Accomplishments

Joelle says her greatest accomplishment is her key role in working with a state-wide advisory committee to move Arizona forward in adopting consistent rules in the onsite industry. One of the biggest obstacles was the use of soil morphology instead of percolation testing as the sole determinant. She was also an original founder of the Arizona Onsite Wastewater Association (AzOWA) which has struggled to get going but is now finally making headway. Wirth is excited about AzOWA's progress because it's a very important tool for all Arizona professionals to have. Included in her accomplishments is being is a Registered Sanitarian in the State of Arizona. She has also been recognized for "Outstanding Contribution to the Environment" by the Soroptimist Club, Arizona Environmental Health Professional of the Year, and holds Grade II Wastewater Operator Certification. Wirth has been relied upon to organize and facilitate the exhibitor program for the Southwest Onsite Conference since 1998.

Ms. Wirth feels her success can be attributed to focusing on the code requirements and obtaining a thorough understanding of all of the aspects of wastewater. Being knowledgeable in your field is a fundamental tool to being accepted and recognized.

Priority Issue(s)

In Arizona, Wirth sees the next step as obtaining adequate training and certification for industry providers. Continuing education instead of one time certifications needs to be required.The emphasis for the onsite wastewater program places a heavy emphasis on the design review and paperwork of wastewater system. Additional attention needs to be dedicated to the installation and operational inspections. Wirth states, "Development has challenged state rule writers to look more towards economic approaches to regulations as opposed to science and public health." These impacts could effect drinking water supplies. In semi-arid regions more emphasis should be made for re-use options and greywater. The concepts are understood but there is a big need for more education in these areas. Enforcing the State's rule revisions is also important, especially ensuring uniformity in the enforcement and communication between the writers and implementers of the rules.

Getting People Involved

Wirth says there has been mild success involving people in AzOWA. It's been a slow start but things are now starting to take off. There was difficulty bringing together the different entities of the onsite industry because they have all carved out separate niches for themselves. But people are beginning to realize the benefits of AzOWA. Joelle credits NOWRA's Executive Director in helping AzOWA take the initial steps to get the Arizona Onsite Association up and running in 2005. NOWRA has been a voice to convince others that the state association is valid and worthwhile. Wirth would like to see NOWRA take a leadership role in networking with everyone in the industry, our state is so large and many areas do not have the technology to participate in meetings. NOWRA has facilitated with these meetings, and could also facilitate by hosting a website where individuals could post questions or share information with others in the wastewater industry. ■

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Schedule of Events

Monday, Dec. 4 8 a.m.-5 p.m. Day 1 Training Sessions.
Breaks throughout the day in the Exhibit Hall and breaks for lunch.

Monday, Dec. 4 5-6:30 p.m. Opening Reception - Exhibition Hall Opens at 5 p.m.
Meet and greet with other attendees and the exhibitors.

Tuesday, Dec. 5 8 a.m.-5 p.m. Day 2 Training Sessions.
Breaks throughout the day in the Exhibit Hall and breaks for lunch.

Tuesday, Dec. 5 5-6:30 p.m. Networking Social - Exhibition Hall Opens at 5 p.m.
Free beer, soft drinks, and snacks.

Wednesday, Dec. 6 8 a.m.-5 p.m. Day 3 Training Sessions.
Breaks throughout the day and for lunch.

Reserve your room with the

lowest rates of the season at $59/room!

For hotel reservations, call the Riviera Hotel at (800) 643-6753.

2006 NOWRA Installer Academy Preliminary Program

Sunday, December 3th, 2006

12:00 - 9:00 PM	Exhibit Hall Set-Up - Hall A - Grand Ballroom		

Monday, December 4th, 2006

6:00 - 10:00 AM	Final Hall Set-Up		
7:00 - 8:00 AM	Registration		
8:00 - 8:30 AM	Welcome	Hall B - Grand Ballroom	NOWRA President

Session Room	1 - Technical Grand C	2 - Practical Grand D	3 - Business Capri 101	4 - Vendor Capri 102	5 - Vendor Capri 103
General Topic	**101 - A to Z of Onsite Systems**	**Equipment / OSHA**	**101 - Business Skills**	**101 Vendor Product Training**	**101 Vendor Product Training**
8:30 - 9:15	History of Onsite Systems		Introduction to Business Practices, Ellen Rohr	Slot 1	Slot 2
9:15 - 10:00	Wastewater Characteristics				
10:00 - 10:30	**BREAK - Exhibition Hall Opens**				
10:30 - 11:15	Soils		Business Practices Continued	1 continued	2 continued
11:15 - 12:00					
12:00 - 1:00	**Lunch on Your Own**				
1:00 - 2:15	Tanks	Excavation Regulatory Review	Business Practices Continued	Slot 3	Slot 4
2:15 - 3:00					
3:00 - 3:30	**BREAK - Exhibition Hall**				
3:30 - 4:15	ATUs	Excavation Continued	Business Practices Continued	3 continued	4 continued
4:15 - 5:00	Media Filter				
5:00 - 7:00	**Opening Reception**				

Tuesday, December 5th, 2006

Session Room	1 - Technical Grand C	2 - Technical Grand D	3 - Business Capri 101	4 - Vendor Capri 102	5 - Vendor Capri 103
General Topic	**101 - A to Z of Onsite Systems**	**201- Installation of Conventional Systems**	**201 and 301 Business Skills**	**Vendor Product Training**	**Vendor Product Training**
7:45 - 8:30	Water Movement	Introduction to Installation	201 - Winning, Compensation, & Bonus Programs, Ellen Rohr	Slot 5	Slot 6
8:30 - 9:15	Soil Treatment	Soils Intro for Installers			
9:15 - 10:00	Construction Practices	Installing Piping			
10:00 - 10:30	**BREAK - Exhibition Hall**				
10:30 - 11:15	Gravity and Pressure Distribution	Installing Tanks	201 - Continued	5 continued	6 continued
11:15 - 12:00					
12:00 - 1:00	**Lunch on Your Own**				
1:00 - 2:15	Pumps and Controls	Installation Safety	301 - Buying, Selling, and Getting OUT, Ellen Rohr	Slot 7	Slot 8
2:15 - 3:00		Installing Pumps			
3:00 - 3:30	**BREAK - Exhibition Hall**				
3:30 - 4:15	Operation and Maintenance	Installing Soil Treatment Systems	301 - Continued	7 continued	8 continued
4:15 - 5:00					

5:00 - 7:00	**Reception - Exhibition Hall**
7:00	Exhibit Hall Closes

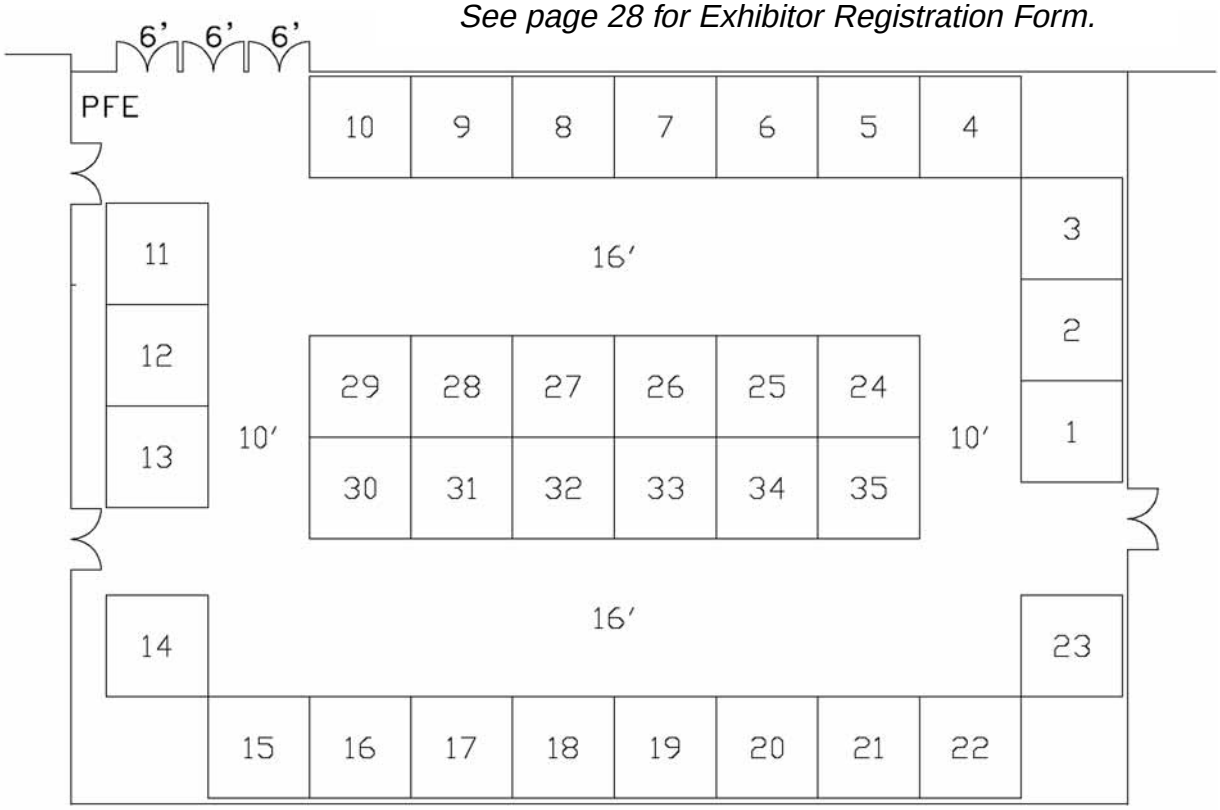
Wednesday, December 6th, 2006					
Session Room	**1 - Technical Grand C**	**2 - Technical Grand D**	**Practical Capri 101**	**4 - Vendor Capri 102**	**5 - Vendor Capri 103**
General Topic	**203 Concrete Septic Tanks**	**202 - Installation Alternative Systems**	**Equipment / OSHA**	**Vendor Product Training**	**Vendor Product Training**
8:00 - 8:30		Site Planning		Slot 10	Slot 10
8:30 - 9:15	NPCA	Installing ATUs	Confined Space Awareness, John Wanamaker		
9:15 - 10:00	Manufacturing of Concrete Septic Tanks	Installing Pressure Distribution			
10:00 - 10:30	**BREAK**				
10:30 - 11:15	Manufacturing Continued	Installing Media Filters	Confined Space Continued	10 continued	10 continued
11:15 - 12:00	Installation of Concrete Tanks				
12:00 - 1:00	**Lunch on Your Own**				
1:00 - 2:15	Jenson's Concrete Plant Tour	Installing Drip Distribution Systems		Slot 11	Slot 12
2:15 - 3:00					
3:00 - 3:30	**BREAK**				
3:30 - 4:15	Jenson's Concrete Plant Tour	Installing Above Ground Systems		11 continued	12 continued
4:15 - 5:00					

INSTALLER ACADEMY TRADESHOW BOOTH LAYOUT

Don't Delay! Register for your booth today!

Priority selection for NOWRA Business Benefit Program Members.

See page 28 for Exhibitor Registration Form.



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TO REGISTER: **Call NOWRA at (800) 966-2942 or fill out the form below and send with payment to National Onsite Wastewater Recycling Association, Inc. • P.O. Box 1270 • Edgewater, MD 21037 or fax to (410) 798-5741.**

Please Print Clearly

Name/Company: _____

Member Number: _____

Address: _____

City, State, Zip: _____

Phone: _____ Fax: _____

Email: _____

Payment Method: Check ☐ Credit Card ☐

Please make checks payable to NOWRA.

If Paying By Credit Card, please fill out the following:

☐ VISA ☐ MasterCard Amount: $ _____

Name on Card (please print): _____

Billing Address: _____

City, State, Zip: _____

Card #: _____

Exp. Date: _____ Security # (3 digits on back of card): _____

Signature: _____

Registration deadline
November 15, 2006

NOTE: Application and fees apply only to NOWRA Installer Academy activities. Participants are responsible for securing and purchasing their own hotel reservations.

Name badges will be created using the names below:

	Exhibit Hall Only (Member or Non) - $95	Member 1 Day Training + Exhibit - $195	Non-Member 1 Day Training + Exhibit - $245	Member 3 Day Training + Exhibit - $295	Non-Member 3 Day Training + Exhibit - $375	Amount
_____	☐	☐	☐	☐	☐	$ _____
_____	☐	☐	☐	☐	☐	$ _____
_____	☐	☐	☐	☐	☐	$ _____
_____	☐	☐	☐	☐	☐	$ _____
_____	☐	☐	☐	☐	☐	$ _____
					TOTAL DUE	$ _____

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- Showcase your products and services to key installers throughout the country!
- TWO days of exhibits, THREE days of education and training
- Give installers something they can take back to the rest of their team and increase your sales!

☑ SIGN UP TODAY – BOOTHS ARE GOING FAST!

10' x 10' Booth _____ **$1,000 (2 or more booths-$900/each)**

Exhibitor Product Training Room _____ **$500***

Exhibitors can purchase a space for their own private training. These private training sessions will be included in the Wednesday, Thursday and Friday training schedules.

TO REGISTER: Call NOWRA at (800) 966-2942 or fill out the form below and send with payment to National Onsite Wastewater Recycling Association, Inc. • P.O. Box 1270 • Edgewater, MD 21037 or fax to (410) 798-5741.

Name of Company: _____ **Member Number:** _____

Business Benefit Program Level: _____

Address: _____

Contact Name: _____ **Phone:** _____

Email: _____ **Fax:** _____

Number of Booths Needed** (Booth Size: 10' x 10')

(circle one): 1 2 3 4 5 6 7 8 $ _____

Private Training Room: Yes_____ No_____ $ _____

Sponsorships (Total from back) $ _____

Total Due $ _____

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Please make checks payable to NOWRA.

If Paying By Credit Card, please fill out the following:

☐ VISA ☐ MasterCard

Amount: $_____

Exp. Date:_____ Security # (3 digits on back of card):_____

Name on Card (please print): _____

Billing Address: _____

City, State, Zip: _____

Card #: _____

Signature: _____

*Exhibitors must purchase a 10' x 10' booth in order to purchase a private training room. **Booths will be assigned according to Business Benefit Program Level and 2006 Participation.

NOWRA and IWA
present the
1st U.S. International Program on Decentralized Systems

to be held in conjunction with
NOWRA'S 16th Annual Technical Education Conference and Exposition

March 10–15, 2007
Marriott Waterfront Hotel
Baltimore, Maryland

NOWRA National Onsite Wastewater Recycling Association

IWA International Water Association

NOWRA is pleased to be partnering with IWA—the world's premier international network of water professionals—for the first U.S. international conference on decentralized systems.

Achieving sustainability in water resource use in the future will require substantially greater use of decentralized systems at the individual building or neighborhood level and an integration of all segments of water infrastructure into a holistic system. Population expansion and environmental limitations overseas has been a driving force for the development of more sustainable, high-tech patterns and technologies of urban infrastructure and development. Some of the innovative onsite programs currently underway worldwide that will be featured in the international program at the conference include:

- **Green Building Ratings**—Australian homebuilders and engineers collaborate to rate water sustainability of urban infill developments by considering source, use, treatment, reuse, and disposal options.
- **Urban Drainage Modeling—**All sectors of water use and treatment are being integrated at the watershed level in Australia.
- **Eco-Sanitation—**Nutrients are being recycled into farming and biogas production for electric lights in rural Indian villages.
- **Managed Reuse in Commercial Buildings—**Over 2,000 Japanese urban buildings collect and reuse graywater, blackwater, and roof runoff for landscaping and toilet flushing.
- **Roof Garden and Landscaping Ordinances—**Green infrastructure substitutes for underground drainage systems reduce demand for water and enhance the aesthetics of urban living in Germany.
- **Biomimicry Research—**British researchers are studying how nature does a much better job at membrane construction than current resource-intensive models.

Don't miss this opportunity to learn more about innovative approaches towards effective and sustainable urban water management and the vital role the onsite industry will play in addressing water challenges

W O R L D W I D E .

Call for Papers for 1st U.S. International Program on Decentralized Systems *(U.S. Program Only)*

ABSTRACT SUBMITTAL PROCEDURES

Please provide the following as MS Word documents.

1. Name, Affiliation, Address, Phone, and Email of Lead Author and Presenter.
2. Names of co-authors, if any.
3. Title
4. Identify the Abstract/Presentation Format; acceptable presentation formats include:
   - 1 or 2-day seminars and/or workshops
   - Case studies
   - 30-45 minute presentations
   - Forums and panel discussions
   - Plenary sessions
5. Identify the Abstract/Presentation Category that best fits your paper and presentation based on suggested conference sessions and themes noted below or suggest an alternate.
6. 200-300 word description of the proposed paper/presentation and length of time needed. (Do not send a PowerPoint presentation or the full text of the paper/presentation.)
7. A short biography that includes profession, education degrees and description of experience as it relates to the onsite industry.

ABSTRACT DEADLINES

September 1, 2006: Abstract submittal deadline. Send abstracts as MS Word documents to Sara Christopherson at shc@umn.edu. If you are unable to email your submittal, please fax it to 612/624-6434.

October 2, 2006: The NOWRA Education Committee will notify individuals of their selection and provide instructions regarding paper format.

December 15, 2006: Approved submittals are to be produced as papers and submitted to the Education Committee for review and editing.

January 12, 2006: Edited papers will be returned to the author.

February 15, 2007: Final papers are due at NOWRA headquarters in electronic format.

SESSION TOPICS AND THEMES

NOWRA Annual Conference—U.S. Program

- Management, Assessment and Monitoring of Decentralized Systems within a Watershed
- Applications of Integrated Water Resources Management In Watersheds
- Nutrient Reduction Strategies
- Standards, Regulations and Policies
- Funding, Planning and Regulatory Reform
- Educating and Training the Next Generation of Industry Practitioners
- Wetlands Strategies for Integrated Water Resources Management
- Facilitating a Sustainable Infrastructure of Distributed Systems in the US – What Does It Mean and How It Can Be Successfully Accomplished?
- Innovative Solutions for Decentralized Wastewater Treatment
- Social and Economic Factors of Citizen Involvement in Planning Decentralized Systems: Implementing the 3 Basics of Integrating Citizens, Watersheds and Results

International Program

- Policies and Regulations of a Sustainable Infrastructure
- Research and Case Studies of Applications of Distributed Systems Employing Integrated Water Resources Management Practices
- Re-use and Reclamation Successes
- Biomimicry Applications
- Research Results on Groundwater Impacts of Pharmaceuticals and Other Medical Discharges
- Economics and Sustainability of Land Development Using Integrated Decentralized Systems
- Future Applications and Sustainability
- Science and Technology for Soft Path Applications

WATER QUALITY & TECHNOLOGY
FEATURE ARTICLE

WERF Research Study:
Primary Treatment in Onsite Systems: Factors that Influence Performance

Approximately 23 percent of the estimated 115 million occupied homes in the United States are served by onsite wastewater systems, the vast majority of which include a septic tank, grease trap, or both for primary treatment. These units are efficient, simple, low/no energy treatment units whose performance is critically important to the overall functioning of onsite wastewater systems. State regulations and most sanitary and wastewater engineering texts contain design, construction, and installation criteria for these units, although such standards tend to vary widely and are often incomplete in their consideration of the myriad factors that may influence primary unit performance in onsite wastewater systems.

The Water Environment Research Foundation (WERF) is conducting a study (04-DEC-7, Primary Treatment in Onsite Systems: Factors That Influence Performance) to identify, compile, analyze, and report on the existing body of literature and other data sources addressing the performance of primary treatment units (i.e., septic tanks and grease traps) in onsite wastewater systems and the factors impacting performance. Design, construction/installation, and operation/maintenance issues are all being considered. Products of this work will include a publishable comprehensive white paper, electronic bibliographic database, extension service style publication and CD-ROM.

Almost 500 relevant references have been identified thus far. A number of these include articles from onsite conference proceedings and technical journals. We are also reviewing a cross-section of fact sheets, guidance manuals and texts containing information, including design criteria, on septic tanks and grease traps in order to get a historical perspective on how septic tanks have been presented to practitioners and users, as well as a snapshot of current recommendations and their bases. Other references include state tank regulations, technical reports, and the gray literature, which includes demonstration project data, regulatory compliance data, and other unpublished sources.

Immediate future work will focus on continued identification and collection of references and on their analysis. The project team will be mining collected references for relevant data and applicable cross-references and will also be investigating and collecting more obscure sources of relevant information by networking with practitioners/stakeholders in the onsite field. Subsequent work will include development of the white paper and associated deliverables. ■

Inquiries can be directed to:
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ARCADIS
4915 Prospectus Drive, Suite F
Durham, NC 27713
vdamato@arcadis-us.com
(919) 544-4535 (phone)
(919) 544-5690 (fax)

WATER QUALITY & TECHNOLOGY
FEATURE ARTICLE

Eljen GSF Recently Included in *Extreme Makeover: Home Edition*

— **Stephen P. Dix, PE**, Septic Solutions LLC

Adding on to an existing home or building a new home can be a complicated process, particularly if your site is limited in size or located in an environmentally sensitive area. Town, county and state regulation approval processes have become continually more restrictive where changes in land use are concerned. Those officials responsible for approving site plans, onsite wastewater treatment systems and other home systems have the responsibility to ensure that regulations are met throughout the building process.

The good news is that many companies are committed to developing ecologically safe and more efficient wastewater treatment systems that provide additional room for home development or expansion, even on extremely difficult lots. The goal for many of these systems is to protect the environment while giving homeowners more flexibility in where they can build and in the size of the home they can build or expand to meet their changing needs.

Sand Filter Technology

Engineered advanced treatment systems can present significant challenges including the complicated machines with complex pumps and controls needed to support the more intense aerobic biological community. Inspection and monitoring of these systems is essential to maintaining performance and concerns over environmental impact make strict maintenance contracts a necessity. For property owners, these intricate systems can be demanding and costly as they also require substantial energy.

To address these challenges, Eljen Corporation developed the GSF Geotextile Sand Filter process. The exclusive interwoven design and patented, two-stage Bio-Matt™ filtration process makes the Eljen GSF the only sand filter solution available that provides maximum treatment capacity in the minimum of space allowed by state authorities. On many sites this technology may be the only way to provide a full service system. Property owners get a reliable, high-performance, and more cost-efficient system that is easy to maintain and provides years of lasting service.

Eljen A42 GSF leachfield modules are placed on the sand on five-foot centers. Jeff Houser, engineer on the project, cuts solid pipe to form a closed loop at the end of the lines with assistance from Mark Eliassen,contractor.

The GSF in Action—Somers, New York

The inclusion of a GSF Geotextile Sand Filter leachfield became a critical factor in enabling a recent Somers, New York, home renovation and expansion to advance through the approval process. The Somers, New York, project featured the repair and expansion of an old, existing septic system to make way for construction of a new three-bedroom home on the site.

Both the New York DEP and the Westchester Health Department watched the project closely due to the area's role as a New York City Watershed. Also of concern to the regulators were the limited space given near by wells and stream, poor soils, and an expanded home footprint. Very simply, a conventional aggregate trench system would only meet a fraction of the

Stephen P. Dix is a nationally recognized authority on decentralized wastewater system technology, design and trends management. He previously served as the Director for EPA's National Small Flows Clearinghouse at West Virginia University and also served as an adjunct professor in Civil Engineering.

homes needs and force the producers of the show to choose another project. These were all challenges needing solutions in order to gain the necessary approvals to move ahead. In addition, a short timeframe to the desired completion date demanded fast action by the entire project team.

The Eljen team had only five days to complete the system including permitting and installation. Due to extremely unusual soil conditions, passive Eljen GSF units were installed with other devices to maximize the capacity of this onsite wastewater treatment system. The geotextile interface provides more than an 8:1 ratio of internal filtration to basal area. In addition, the GSF expanded the effective area from trench bottom area to the base of the sand filter by more than doubling the capacity of the limited site.

System Details

In Somers, New York, engineers found that the original circa 1953 handmade block tank was leaking into the subsoil below. The telltale black streak meant replacing this tank was an important step in the system's repair. The Eljen GSF units were placed on a layer of C-33 sand fill on five-foot centers with solid pipe cut to form a closed loop at the end of the lines of the perforated pipe above the media. After backfilling three feet of sand between the GSF rows, geotextile was placed over the Eljen GSF units and secured with wire hoops.

Due to the design of this system using the GSF, instead of three, two-foot aggregate trenches on five-foot centers (six sf/ft in total), the Somers, New York, system was approved with a 13-foot wide filter. This approval more than doubled the rated capacity of the limited area for the absorption system. This was critical as the footprint was severely constrained by setbacks to wells and a nearby stream, making every square inch of soil important. With the incorporation of the Eljen GSF system, the home received a variance that included an absorption system size reduction. With the onsite system designed for environmentally sound treatment and efficiency, the DEP gave everyone the green light to proceed.

Conclusion

The wave of the future is moving toward industry-tested technology and products and consistent treatment standards. Also key is the development of wastewater treatment systems that are low maintenance, simple and reliable, making quality treatment a priority that is available to all. Development and approval of new treatment components that offer passive advanced treatment, are simply designed with no moving parts, and require minimal operation and maintenance could become the future recommended wastewater management solution by industry professionals. This acceptance of this new type of system will be key to sustaining development and the environment in the years to come.

About Eljen Corporation

Eljen provides innovative pretreatment solutions for decentralized wastewater systems. The company, located in East Hartford, Connecticut. has provided passive wastewater treatment and disposal systems for over 25 years. ■

"Extreme Makeover: Home Edition" is produced by Endemol USA, a division of Endemol Holding. David Goldberg is the president of Endemol USA. The series is executive-produced by Tom Forman. The show airs Sundays (8:00–9:00 p.m. ET), on the ABC Television Network.

Access to the distribution box (left), aerobic pretreatment system (center back) and the septic tank (right) is worked into the landscape so that appropriate plantings will minimize their visibility.

WATER QUALITY & TECHNOLOGY
FEATURE ARTICLE

Growth Can Move Forward While Preserving the Quality of Surface Water Resources

— **Brian Davis, Ph.D.**, Senior Design Engineer,
North American Wetland Engineering, LLC

Minnesota, the land of 12,000 lakes and 92,000 miles of streams and rivers, is blessed an abundance of surface water. One can understand how it might be easy to take this precious resource for granted. However, a recent lawsuit brought by a state environmental group has placed the issue of the quality of Minnesota's surface waters squarely in the limelight. The lawsuit was brought by the Minnesota Center for Environmental Advocacy (MCEA) against the Minnesota Pollution Control Agency (MPCA). It began when the MPCA granted a new sewage discharge permit to the Cities of Annandale and Maple Lake. According to the MCEA, the MPCA erred in granting a new permit for discharging phosphorus to the North Fork of the Crow River, a tributary of the Mississippi River, which flows into Lake Pepin—a water body listed as an impaired water body under the Federal Clean Water Act.

The lawsuit resulted in the stoppage of at least 60 development projects across the state. The economic impact of these stoppages is significant. Will these projects be delayed for months? Years? Can Minnesota both grow and preserve the quality of its surface water, one of its most treasured resources? Could similar issues slow growth in other states where treated wastewater is discharged into surface water bodies?

At issue in Minnesota is the application of the Federal Clean Water Act to Lake Pepin, a portion of the Mississippi River into which the Minnesota, St. Croix and upstream portions of the Mississippi Rivers all flow. Lake Pepin has been listed as an impaired water body under the Clean Water Act. In short, the lake contains too much phosphorus, a nutrient that is a component of treated wastewater and runoff from both agricultural and non-agricultural lands. The MPCA must complete a study of the river basin that allocates the amount of phosphorus that each wastewater treatment plant can discharge, called a "total maximum daily load," or TMDL. However, an extensive TMDL study is not expected from the MPCA until 2009. Until then, no new sources of surface water phosphorus discharge to these rivers and tributaries are allowed in the watershed, which encompasses a significant portion of the state. Although the Minnesota Supreme Court is due to deliver a ruling on a challenge to the lawsuit that created this "no new source" situation, the fact remains that fewer than 20 percent of Minnesota's lakes and river miles have been assessed by the MPCA for their impairment status under the Clean Water Act for phosphorus, mercury, bacteria, and other pollutants. Furthermore, according to the *Minneapolis Star-Tribune* (April 9, 2006) while more than 2,200 Minnesota waters have been listed as "impaired", only five cleanup plans have been completed, 50 are being developed, and the 150 presently on the waiting list are expected to increase to 600 in the next four years. The future of discharging treated wastewater to Minnesota's surface waters may be in doubt.

Much of Minnesota's population relies on the Mississippi River for the discharge of treated wastewater. But Minnesota is not unique in that regard. Many other American cities, large and small, discharge to the Mississippi River and its tributaries from wastewater treatment plants ranging in size from 320 million gallons per day (MGD) in Saint Louis, Missouri to 2.5 MGD in St. Cloud, Minnesota to even smaller flows from smaller cities. The City of Chicago is also a contributor, with its 1,500 MGD being discharged to the Des Plaines and Illinois River basins—which flow into the Mississippi. Numerous American cities discharge to major rivers and the Great Lakes. Since wastewater is an "out of sight, out of mind" issue for many people, it is easy to take for granted the seemingly inexhaustible capacity of receiving water bodies to do just that: receive treated wastewater.

However, these receiving water bodies are not inexhaustible. Of note is that only 3% of the water on our planet is fresh water. Moreover, *only 0.266% of all fresh water is contained in lakes and rivers*, with approximately one-fifth of that contained in the Great Lakes, a water resource of increasing ecological concern. Many American wastewater treatment plants discharge to freshwater rivers or (to a lesser degree) lakes. As the U.S. population continues to increase, water demand will continue to rise, as will wastewater discharge volumes. Maintaining optimal levels of wastewater treatment will gain in importance as demands on our waters, from both wastewater and water supply standpoints, continue to increase.

Dr. Brian Davis is a Senior Design Engineer with North American Wetland Engineering (NAWE), specializing in the design of engineered wetland treatment systems for municipal and industrial wastewaters. He has extensive experience in numerical modeling of water chemistry, analytical and numerical modeling of unsaturated and saturated subsurface flow and transport processes, and design of horizontal and vertical flow engineered wetland wastewater treatment systems.

As the Minnesota case illustrates, the listing of a receiving water body as "impaired" can immediately bring to this issue to the forefront. Under section 303(d) of the 1972 Clean Water Act, states are required to develop lists of impaired waters, defined as those waters that do not meet state water quality standards. States must establish priority rankings and develop TMDLs for these waters. The TMDL specifies the maximum amount of a pollutant that a water body can receive and still meet water quality standards. The TMDL also allocates pollutant loadings among point and nonpoint sources. Partially due to increased legal action by citizens groups, the EPA is under court order or consent decrees in many states to ensure TMDL establishment. Under 1997 EPA guidance, states should develop schedules for establishing TMDLs within 8 to 13 years of listing as an impaired water body. Over 35,000 impaired waters have thus far been listed. The six most common causes of impairment nationwide are pathogens (14.6% of impaired waters), mercury (14.3%), nutrients (8.8%), metals (other than mercury; 8.3%), sediment (8.2%), and oxygen depletion (6.7%). Since January 1, 1996, 19,543 approved TMDLs have been reported to EPA.

It is clear that a significant amount of work remains to be done in assessing water bodies for impairment and completing TMDLs for those water bodies. What is not clear is how many more legal situations similar to that occurring in Minnesota will occur elsewhere. The lawsuit in Minnesota serves as a wake-up call for those who have assumed that growth can continue as it has before, under the assumption that an increase in population and water use will simply require a concomitant increase in wastewater treatment capacity and discharge. If the receiving water body for wastewater is or is likely to be placed on the impaired waters list, it may be time to investigate alternatives. With the U.S. population expected to increase from 300 million persons this year to 400 million in 2050, the time for action is fast approaching.

Installation of infiltration beds for soil disposal of treated wastewater. Infiltrator® chambers, each enclosing a pressure distribution lateral, are placed parallel to each other on a sand bed and then covered with native soil. Copyright © 2006, North American Wetland Engineering, LLC.

For municipalities large and small, both engineering and behavioral water conservation measures can be implemented to reduce per capita water use. According to the EPA, in urban areas, residential use accounts for three-fourths of all water use, highlighting the importance of such measures. Engineering measures can include low-flush toilets, toilet tank displacement devices, low-flow showerheads, water-efficient washing machines, faucet aerators, xeriscape landscaping, and grey water recycling. Behavioral measures can include running the dishwasher only when full, taking short showers and turning off the shower while not rinsing, watering lawns and plants only in the early morning or late evening, and sweeping off, not hosing down, sidewalks and driveways.

Large municipalities which produce large volumes of treated wastewater may be able to reuse their water or to implement aquifer recharge practices. For example, the City of Las Vegas, Nevada and the Las Vegas Valley Water District have partnered to build the Durango Hills Water Resource Center, a wastewater treatment and reuse facility that can treat up to 10 MGD of water for reuse as irrigation water.

However, are such options feasible for smaller and mid-sized communities? Are there disposal or reuse options for communities that may not have the financial resources of a city such as Las Vegas? Can the growth of small and mid-sized municipalities continue in the face of the TMDL challenge?

The answer is yes. Growth can move forward while preserving the quality of surface water resources. Solutions that allow for growth while preserving surface water quality are readily available from firms such as North American Wetland Engineering (NAWE) that are committed to protecting the economic and environmental health of Minnesota and other states. Low-energy, sustainable technologies such as engineered wetland treatment systems, soil disposal systems, and water reuse can significantly reduce the ecological impact of wastewater treatment and disposal on the environment.

The design of wastewater treatment and disposal systems that use proven technologies to distribute treated water

continued on page 36

to the native soil, thereby eliminating the need to discharge to surface waters, is a practicable solution for many communities. These technologies may include soil infiltration beds, infiltration trenches, and drip irrigation disposal fields, which are combined with low-energy, ecologically-sound engineered wetlands to treat wastewater to state-required levels. Infiltration beds and trenches utilize pressure distribution to disperse treated wastewater over a specified surface area of native soil. Unlike a traditional septic system, with these technologies the native soil is not relied upon for biological oxygen demand (BOD) treatment since an upstream engineered wetland or mechanical treatment plant has already accomplished this task. Drip irrigation disposal fields utilize proven drip irrigation technology to pressure distribute treated wastewater to native soil through buried tubing. Numerous infiltration bed, trench, and drip irrigation disposal systems are in operation in Minnesota, proving their worth day in and day out for developments and communities throughout the state, and returning the water to the subsurface for future use.

Water reuse can easily be incorporated into an engineered wetland treatment system to complete the cycle of low-energy, ecologically-wise technologies. For example, at an Oak Grove, Minnesota development named The Ponds, an engineered wetland has been installed to treat up to 86,300 gallons per day of domestic wastewater. The treated water is then stored in a reclaim pond and used to irrigate an 18-hole golf course, thereby recycling one of Minnesota's greatest treasures back to the land. Soil disposal and water reuse are viable options for avoiding the issue of TMDLs entirely—and for preserving the quality of surface water resources. Such solutions may be workable in your community, too. ■

Drip irrigation disposal system following installation. Drip tubing is installed below grade using a vibratory plow or trenching device. Copyright © 2006, North American Wetland Engineering, LLC.

Installation of an engineered wetland wastewater treatment system: a recirculating gravel filter for treatment of domestic wastewater. Copyright © 2006, North American Wetland Engineering, LLC.

ONSITE INDUSTRY NEWS

Stand Your Ground When It Comes to Pricing

— **Ellen Rohr**

You were tired of losing money. So, you took my advice and crunched the numbers. You added up your total costs, and divided them by number of hours sold. You inflated your break-even for your desired profit level. Voila'. You've come up with a new selling price. And your new price is three times what your competitors are charging.

Sigh.

Now what?

First of all, understand that the reason your price is three times higher than your competitors' is that they haven't crunched the numbers. They have no idea why they aren't making money. They are driving, at night, with the lights off…and they are heading toward the cliff.

How come?

If Everyone Jumped Off a Cliff . . .

Imagine this scenario. Your 16-year-old daughter asks you if she can go to an all-night party at the lake. Everyone will be there, she pleads. You respond, using your mother's words, the words you vowed you would never repeat, "If everyone jumped off a 500 foot cliff, would you?" You are right. Just because everyone does something doesn't mean it's the right thing to do.

Once upon a time, in your industry, someone recognized a need, and satisfied it. Or delivered the solution to a problem. He was the first one in. He started the game and created the industry, *your* industry. It was a great idea; it was brand new, and it was going to SELL.

Once upon a time, Mr. First-One-In asked himself, "How much should I sell it for?" Most business owners are not good at crunching the numbers. So Mr. First-One-In pulled a price out of thin air. Yep. Did he add up all his costs of doing business and do a break-even analysis on the product or service? Nope. He considered a few of the hard costs that went into the item, and then inflated it. Willy nilly. Wild guess selling price. Pulled out of thin air. He forged ahead with that price, lost money, but was too busy to notice.

Then, the second person to jump into your industry called the first person. He assumed a fake voice, and asked, "How much do you charge?" And the second person charged just about what the first person charged. You see, he assumed that the first person knew what he was doing! After all, he was in this business already, and he MUST have created a selling price that would deliver a profit. He must have crunched the numbers. Right? Mr. Second-One-In thought he saved himself a lot of work and worry by copying the first person's selling price. He justified this approach by saying, "After all, I can't charge more than the 'going rate' —i.e., what Mr. First-One-In is charging—or no one will buy from me."

Since then, every person who enters your industry calls those already in and establishes a selling price based primarily on what they are charging. If most small businesses stink, and they do, this is about as logical as going to an all-night beach party just because *everyone* will be there. It's the blind leading the blind, right off the cliff.

You wouldn't say yes to the all night lake party for your 16 year old. Don't say yes to an "Everyone's doing it" selling price. Both are BAD ideas.

Get clear on a realistic selling price. Base your price on your total costs of doing business, including generous compensation and benefits for you and your wonderful employees. You will discover that your realistic selling price is significantly higher than your 'blind' competitors. At this point you have two choices:

1. Learn how to market and sell at that price.
2. Take your ball and go home.

I recommend you go with number 1., because you can always default to number 2. Why not learn how to sell value instead of price? Why not become so much better than your competitors at what you do and how you do it, that your clients will be happy to pay your prices. We have gotten so used to poor customer service that, frankly, it isn't even difficult to be extraordinary. Be polite. Show up clean and on time and you will blow away most of your competitors.

If you charge the 'going rate,' you will DOOM your business. You'll take it straight off the cliff with everyone else's businesses.

Be better. Charge more. Stand your ground. Make more money.

Simple as that.

Bare Bones Biz Rule: Charge more than it costs. ■

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Ellen Rohr

ONSITE INDUSTRY NEWS

Making Money! Financial Dos and Don'ts

— Ellen Rohr

Ready to make more money? Do and don't do these things . . .

- DO understand that you are in business for the MONEY.
- DON'T be ashamed about that.
- DO run a balance sheet, income statement and cash flow report every WEEK! Once a month is NOT enough. The game is over by the time you get the score.
- DON'T trust industry averages for budget and performance comparisons. If most businesses stink, and they do, what can you learn from industry averages?
- DO base your selling price on YOUR costs of doing business.
- DON'T pay any attention to what your competitors are charging. What do they know?
- DO understand that the proper selling price is the first and most important step in making more money for yourself and your employees.
- DON'T spend money on marketing, uniforms, new trucks, computer systems, and new employees until you have raised your prices to cover the new costs.
- DON'T call me if you are convinced you can't raise prices in your neighborhood.
- DO call me if you want to discuss how to do it.
- DON'T forget you live in the greatest country in the world, in the most fortunate time in history. This is a renaissance age. What are you waiting for?
- DON'T forget Warren Buffet's rules for business. Rule #1: Never lose money. Rule #2: Never forget Rule #1.
- DO something NO ONE else does…and charge a LOT of money for it.
- DO pay your employees much better than anyone else.
- DON'T forget that there is more than one way to make a living.
- DO whatever it takes to make a customer happy, even if it means giving them all their money back. If you honestly think you are being taken advantage of, then…
- DON'T work for that customer again.
- DO spend more time asking questions than pitching your product.
- DON'T make a sale if it isn't in the best interests of the customer.
- DO ask the customer for feedback. Send a report card, or follow up with a phone call.
- DO ask for the sale every time.
- DON'T worry when they say, "No."
- DO ask if you can ask them one more question.
- DO ask, "What made you say, 'No?'" and see if you can fix it.
- DO feel free to say, "No" to customers who won't let you make a profit.
- DON'T use low prices as your selling advantage. The advantage disappears the moment someone dumber than you offers a lower price.
- DO offer service with a smile. Look around at all the wrinkled, frowning faces in this world. Smiling is a nice thing to do. Customers will respond to it.
- DO keep score in the sales game. Competition is good fun and good for you.
- DO listen to old people. You are going to be old someday, if you're lucky. And you'll want people listen to you because you will have learned a few things worth sharing.
- DO work on your own attitude towards work and life.
- DON'T discuss anyone else's attitude with them. 1.) It's none of your business. 2.) There is nothing you can do to change someone else's attitude.
- DON'T assume that telling someone to do something means it will get done. Put it in writing and follow up.
- DON'T assume anything.
- DON'T reward every employee the same way regardless of performance.
- DON'T give raises every year just because.
- DO create a compensation plan that combines hourly wages with bonuses for "Sales Above Goal" performance.
- DO apologize if you are wrong.
- DON'T hold a grudge.
- DO more of what works and less of what doesn't.

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ONSITE INDUSTRY NEWS

NAWE Joins U.S. Green Building Council and Earns LEED Accredited Professional Certificate

IN MEMORY OF

Claire McQuestion

The National Onsite Wastewater Recycling Association is sad to report the loss of one of Wisconsin's valuable members, Claire McQuestion. McQuestion, age 66, of Lake Shore Burial Vault, died unexpectedly on June 25, 2006, at home in his sleep.

McQuestion and his family were very active within WOWRA over the years. His wife, Gretchen, served as WOWRA executive secretary for many years. His son, Brian, is currently a member of NOWRA's Board of Directors, and Secretary-Treasurer, and is also a WOWRA board member. Claire most recently attended the WOWRA board meeting on June 17, 2006, in Door County.

His obituary read in part: "Claire was a funny man who rarely smiled for the camera, a gentle man who was also a pillar of strength, a great man who remained humble. His wit was quick, his integrity absolute, his loyalty unwavering. Nothing made him happier than taking care of his family and friends, whose numbers are too great to count. He will be greatly missed. Claire was an avid golfer and sports fan with an appetite for life. He used to love to say how just about every day was a great day for the race—the human race. Without Claire that race will be a little harder."

Claire McQuestion will be deeply missed by those who knew him, as evidenced by the long lines of people who visited with his family to pay their respects at his funeral. Our condolences go out to the entire McQuestion family. Memorials may be sent to the American Heart Association or the American Diabetes Association.

North American Wetland Engineering LLC (NAWE) is proud to announce its membership in the U.S. Green Building Council (USGBC). As a member of the USGBC, NAWE joins the nation's foremost coalition of leaders from across the building industry to promote environmentally responsible, profitable, and healthy places to live and work. NAWE's LEED® accredited professionals are available to provide valuable water and wastewater engineering and design expertise to LEED green building projects.

In the United States, buildings use one-third of our total energy, two-thirds of our electricity, and one-eighth of our water. Given the impact buildings have on the environment, the USGBC established the LEED (Leadership in Energy and Environmental Design) Green Building Rating System® to provide a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. USGBC's members represent every sector of the building industry, and are committed to supporting green design and sustainable communities.

LEED was created to:

- Define "green building" by establishing a common standard of measurement
- Promote integrated, whole-building design practices
- Recognize environmental leadership in the building industry
- Atimulate green competition
- Raise consumer awareness of green building benefits
- Transform the building market

As a member of the USGBC, NAWE will fuel the growing green building trend by helping architects, developers, and owners pursue LEED certification in order to improve the quality of buildings. Green design not only makes a positive impact on the environment and public health, but it also reduces operating costs, enhances building and organizational marketability, potentially increases occupant productivity, and helps create communities capable of being sustained into the future.

NAWE is an award-winning ecological engineering company internationally recognized for developing innovative and sustainable environmental solutions. The company has extensive experience in the design, construction, and operation of constructed wetland treatment systems, which provide high performing, low cost, ecologically based wastewater solutions. Award-winning NAWE projects include Jackson Meadows in Marine on St. Croix, which won the 2000 Minnesota Honor Award from the American Institute of Architects and the 2002 Minnesota Environmental Initiative Award.

NAWE's LEED professional certification enables the company to be eligible to consult on projects that mandate the involvement of LEED Accredited Professionals. With the vision of creating sustainable infrastructure using ecological technologies, NAWE is committed to encouraging and promoting a higher understanding of LEED and green building and supports the USGBC's mission of transforming the building industry to create a sustainable future.

For more information contact North American Wetland Engineering, LLC. 4444 Centerville Road, Suite 140, White Bear Lake, MN 55127, 651-255-5050 (office), 651-255-5060 (fax), www.nawe-pa.com ■

ASABE Call for Papers for Its 2007 Symposium

ASABE announces a **Call for Papers** for their **11**th **Eleventh National Symposium on Individual and Small Community Sewage Systems**. Along with NOWRA, ASABE has a strong commitment to providing a platform to share important research and to discuss critical issues on individual and small community sewage treatment. This symposium will be held at the Crowne Plaza Hotel at the Crossing in Warwick, Rhode Island, USA, October 20-24, 2007.

ASABE's Call for Papers is interested in information in the following topic areas including but not limited to the following:

- Fate of Contaminants
- Technology Transfer
- Educational Programs
- Constructed Wetlands
- Design Loading Rates for Soil Based Systems
- Small Community Systems
- System Management
- Wastewater Reuse
- Diagnosing and Premeditating Failures
- System Sitting: Evaluation Methods
- Design and Evaluation of Innovative and Alternate Systems
- Standards for Onsite Sewage Treatment

Abstract Submission: An abstract is indicative of final paper quality; therefore, authors are urged to prepare quality abstracts. The abstract should be approximately 200-300 words, single-spaced and must emphasize objectives and results. Inclusion of tentative or final conclusions will greatly strengthen paper proposals and abstracts. To see more information on the ASABE 11th Eleventh National Symposium on Individual and Small Community Sewage Systems visit http://www.asabe.org/meetings/sewage2007/index.htm and to complete the electronic submission form for your abstract click the link to our electronic submission form.

All paper proposals must be received by November 15, 2006, to be considered for inclusion in ASABE's 11th National Symposium on Individual & Small Community Sewage Systems held October 20-24, 2006 at the Crowne Plaza Hotel at the Crossing in Warwick, Rhode Island. Submissions are accepted electronically by visiting www.asabe.org/meetings/sewage2007/index.htm. ■

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