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Onsite Journal

National Onsite Wastewater Recycling Association

ADVERTISERS' INDEX

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on the cover—the beautiful Rio Grande at dusk

DEPARTMENTS

FEATURES

FRANKLY SPEAKING...

by Tim Frank,
NOWRA President

It seems like spring has just arrived and yet summer is flying by. The annual NOWRA CONFERENCE for 2004 which is being held in Albuquerque this year is drawing near. Our executive director and her staff are making arrangements and planning this major event.

Our committees are diligently working on details. The education committee is putting the final touches on our education sessions.

NOWRA is having two pre-conference programs on Sunday November 7. One will be the *Introduction to the Qualified Installer Education and Training Course for Onsite Systems*. Completion of this course will provide CEUs. The other is *Re-using, Recycling and Reclaiming Wastewater*. The importance of each of these workshops cannot be stressed enough.

We know with certainty that down the road we will be required to take courses to meet certification for all installer practitioners. Who should attend these courses? The installer course will cover basics of onsite systems and it will be of great benefit to anyone who works in the onsite industry.

Installers and service providers, you will be in on the ground floor learning what is soon to be mandated to you. We are getting to a point in this country where the professionals in our industry must take responsibility to ensure water quality protections. Also, you will have the opportunity to get your input across to other installers across the country.

This course not only covers the mechanics of systems, but it also goes into customer relations, developing quality contracts, and dealing with regulatory permitting procedures.

Service Providers, it will be much easier to start at the beginning than to try to play catch up later on, and I am sure that many of you out there can share experiences that will help shape a course like this.

Home Inspectors, this course will give you insight into what makes an onsite system work or not work.

All participants will gain knowledge about NOWRA's ongoing work with the Consortium to develop a Qualified Installer Education & Training Course leading to certification and how it relates to the NEHA certification program currently being developed. NOWRA is advocating a national legislative initiative that will require mandatory certification of all professions within the onsite industry.

Educators and Regulators, it would be great if we were all on the same page as to how we want onsite installations done so that there is more of a sense of longevity for their use and their effectiveness in protecting the environment.

JOIN US, and let our group hear your concerns. We can have a very worthwhile program if we all work together. This course will be an ongoing and comprehensive program, and will belong to NOWRA. When finished it will give you the knowledge to pass the NEHA test to be a certified. Remember, it's easier to start at the beginning than to play catch up later.

This is important to you as well as your industry. If you do not attend, you lose your edge.

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

PRE-CONFERENCE WORKSHOPS

Introduction to the Qualified Installer Education and Training Course for Onsite Systems

Re-using, Recycling and Reclaiming Wastewater

Learn more about NOWRA'S two new Pre-conference programs on pages 23-24.

HEADQUARTERS UPDATE

Linda Hanifin Bonner, Ph.D., Executive Director

A Report on NOWRA's June 11, 2004 Board of Directors Meeting

As a cost-savings measure, the NOWRA Board of Directors conducted its summer meeting in Golden, CO, immediately following the Model Performance Code Meeting, so that members who attend both activities could do so at less expense. Of the 18 Board members, only 3 were unable to attend. Major agenda action items included the NOWRA Installer Education and Training Program, the NEHA Installer Certification Stakeholder Workshop, and a Board position white paper addressing state's needs to integrate performance into their codes. Board action occurred on recommended bylaws changes and updates, and initiation of a new policies and procedures manual for NOWRA. Board Consent and Information items were briefings about the 2006 conference facilities, ongoing preparations for the 2004 conference, membership recruitment and the state leaders August 4-5 meeting in Kansas City. The entire contents of the NOWRA Board of Directors Meeting Report is located on NOWRA's website – in the Board of Directors link.

2004 Financial Update

Income during the first six months of the year has been slightly higher than budgeted. A low attendance occurred at the Indiana Drip Distribution Workshop causing a loss in revenues, due to the inability of state and local officials to have funds to attend – despite a highly aggressive marketing program through direct mail – websites, e-mails. Future approaches to marketing education programs will be a topic discussed with state groups during the August 4-5 meeting in Kansas City. NOWRA may need to consider some form of shared liability with the state group in order to ensure program successes. Overall NOWRA programs are progressing well, but additional revenues are needed for the next six months to continue the current rate of activities.

At the same time, management expenses also increased due to additional work occurring within the office. Nearly 2500 additional memberships from new states joining NOWRA were processed that included integrating into the 2004 Directory, producing conference marketing materials, marketing the business benefit program and working on fundraising. In discussions with the Executive Committee, it was agreed that the Executive Director would provide an updated work plan for the remaining 6 months (July-Dec) in 2004, so that needed budget adjustments could be made accordingly.

NOWRA's 2004 Business Benefit Program realized its defined goals with greater participation than expected in the first quarter. Participants in this program are mostly from national companies, however, the "Online Locator," effort still needs additional marketing to the smaller targeted business groups. The State's efforts to market the online locator is also a topic for discussion at the August 4-5 State Leaders meeting. Bob Mayer also suggested doing market research in order to make future decisions based on market analysis – and adjustments this fall for 2005.

Board member Brenda Guy informed the group of a July 6 meeting with Louisiana realtors, and she is working to get conference information brochures out to all state realtors. This meeting will also enable her to get to obtain direction with the national association. Jim Converse stated that, "NOWRA needs to be in a position that we are viewed as their education resource and that they know they can contact us for this service." Jerry Stonebridge suggested contacting John Thomas regarding educational classes for realtors; "they told us what they needed and that's how we got started."

Service Contracts

The Executive Director brought several contractual matters to the Board's attention that included authorization for the Executive Committee to finalize and sign agreements with Mike Corry, Hanifin Associates, E-Volare, ADWA, and Essie Consulting. NOWRA is contracting with Essie Consultants to secure funds for the model performance code project and make prospective contacts (new or old) to fund NOWRA's ongoing programs. NOWRA's membership dues, as low as they currently are, cannot financially sustain the Association's programs and management requirements. The Board unanimously agreed to authorize the executive committee to finalize and sign these contracts. This action also included signing a contract with the American Decentralized Wastewater Association to provide funding to Mike Corry to produce a code product for the ADWA.

NOWRA Installer Education and Training Program

The Board's discussion focused on areas relating to the extensive efforts required to produce the high level of education and training needed for a highly credible NOWRA program. Board members reviewed the options to move NOWRA forward; funding needs for the trainers have the course developed by November; whether there are existing models or materials already created by other groups or the states with training programs could provide NOWRA with available materials; plus conducting courses in other states. Several members expressed a comfort level in using the consortium members and developing a project that is credible for NOWRA with strong support to have the consortium become the education partner for NOWRA. Mike Corry emphasized that training, certification and the performance code are all linked; programs have to be integrated; have to get started with an instrument – development materials relating to performance; code requires training/skills at state level; at that model, linking all these pieces together it will work – and be successful.

Corry also briefed Board members on a request by NEHA to participate in the June stakeholder meetings for the NEHA Installer Certification Program. He joined other NOWRA representatives that included Jack Myers from FL; Ronnie Thomas and Mike Lynn (VA), Gene Bassett (NM), Tom Frank and Ralph Benson (OH). There was unanimous agreement to have Mike attend the first meeting with a request to provide a report back to Executive Committee. See subsequent report on page 14.

NOWRA Position Statement on Performance Codes

A "white paper" intending to represent a position statement of the NOWRA Board of Directors on the Model Performance Code Position, and previously prepared for use by the State of California was presented for discussion. It was reported that this document is also needed by many other states and serves as a part of the "grassroots legislative initiate." The Board subsequently approved a previous white paper and position statement supporting the use of the NOWRA Model Performance Code materials in the development of state and local codes. The new revised document is now restructured for use by any state. Board members agreed to adopt the document once additional changes and edits are completed. Mike Corry and Jean Caudill agreed to prepare a revised document and post on the Board Network File Library. Board member Brenda Guy requested that the Board acknowledge its appreciation to Mike and Jean for the tremendous work being accomplished.

Policies and Procedures Manual Content Outline

The NOWRA Board was presented with a content outline by the Executive Director, who requested approval to proceed with development of a document based on the presented outline. Board members unanimously approved a motion made by Jim Converse, seconded by Roman Kaminski, to take the most important items relevant to NOWRA and begin work on a draft document. A draft document will be presented to the Board at its November meeting and acted upon in December.

NOWRA 2004 By Laws Changes

The Executive Director presented changes and amendments to the NOWRA By Laws, action needed to bring them up to date with the ongoing and future work, and requesting approval of these items. Following an extensive discussion and review of the recommended changes and additions, the Executive Director was instructed to provide another draft document and repost in Board network file library.

NOWRA Board Consent Items

- *2006 Conference Site* – the Executive Director requested and received approval of the Board to move forward to obtain contract costs and finalize a site for the NOWRA 2006 International Conference, in Washington D.C. In the meantime, a separate planning and management group will be established.

- *Future Conference Locations* –Board members agreed that Denver, CO is the 2007 conference location; Portland OR - 2008; and New Orleans - 2009.

- *Membership Recruitment and State Leaders August 4-5 Meeting in Kansas City, MO*. Following a brief discussion about the session, the proposed meeting was fully supported by the Board, with officers invited to attend. Board members will be kept informed of planning activities.

- *A Discussion of a Proposed Education Memorial*, which first originated as a tribute to Ken Zoeller and has since grown to include others who have contributed significantly to the industry. The Executive Director will prepare an action plan with implementation strategies, and provide it for Board members' review on the website.

The Board's next meeting will occur through a teleconference, the date and time yet to be determined. All of the Board of Directors' final meeting reports can be reviewed on NOWRA's website.

Model Performance Code COMMITTEE UPDATE

Mike Corry, Co-chairman

Preparing for the NOWRA Committee Report Presentation – Wednesday, November 10, 2004 – 8 a.m., Hyatt Albuquerque Conference Center

Golden, Co. – June 11-12, 2004. Members of the Model Performance Code Committee spent two days working on the various sections of the forthcoming draft document. Hosted by Dr. Robert Siegrist at the Colorado School of Mines, committee members had an opportunity to focus primarily on the new version of the soils report, produced by Dr. Jerry Tyler and Del Mokma, and address key areas. Committee members also worked on the guidance documents and tank standards. The next committee meeting is scheduled to occur September 10-11, 2004, at the Radisson Hotel, 601 Fairfax Drive, in Alexandria, VA.

As the Committee's work reaches an important milestone in producing this draft document for the November 10th presentation in Albuquerque, it is also an opportune time to revisit the purpose and mission of this work.

The overall purpose and design of the NOWRA Model Performance Code is to realign the regulatory structure of the onsite industry with the overall goal to make the entire industry more effective and efficient.

Why regulatory realignment? Why more industry efficiency?
First, the regulatory system is the backbone of the onsite industry. It delivers safety services to the public and makes the product and service market viable. Remember, it was not that long ago that the outhouse was considered an innovative systems.

At the same time, while the current regulatory structure simultaneously promotes higher health and environmental standards, it also restrains the implementation of products and technology by making it extremely difficult to bring new solutions to the market place. This yin and yang scenario is primarily the result of the relative young age of the overall onsite industry (as compared to the 100 year-old municipal sector) and a regulatory structure that is still anchored in methods more suited to the construction of outhouses and conventional septic systems.

The regulatory reforms needed for future efficiency are to shift some functions now performed by state level government and to increase the role of the state as manager of the regulatory process. The two major areas are to shift:

1) the evaluation and certification of manufactured products, standard designs and people to the national trade associations, and
2) the determination of performance standards to the local government level.

Evaluation and Certification - Effective evaluation and certification programs are very expensive to develop and implement, and far too expensive for either the local or state level of government to effectively accomplish. Further, product approval programs at the state level result in hundreds of "unique specifications and approval processes" that make it very difficult to deploy products and professional service across multiple jurisdictions. Evaluation and certification programs of national private service organizations like the National Environmental Health Association (NEHA) and the National Sanitation Foundation (NSF) Inc are recognized nationally and enjoy economies of scale not available at the local and state level. The state codes should require certification and recognize holders of national certifications as meeting the state requirements.

The draft NOWRA Model Code contains language to recognize these national evaluation systems. The code's classification matrices will provide a method to recognize the performance differences of manufactured components and site constructed standard treatment designs. The evaluation committee headed by Fred Bowers, New Jersey Department of Environmental Quality, is developing the system to evaluate and classify treatment systems in the classification matrices based on test center and field data. The code will also provide a national evaluation system for the soil component through the work of the NOWRA Soil Component Committee headed by Drs' Jerry Tyler, University of Wisconsin and Del Mokma, Michigan State University. The Tank Standards committee headed by Bob Pickney, Tennessee Water Systems Inc, is developing performance standards for structural integrity and water tightness.

Performance Standards – Shifting the primary responsibility of adopting effluent performance standards to local government is warranted as an efficiency issue and a health and environmental protection issue. Performance standards should be applied relative to site risk. Because risk varies from area to area, performance standards should also vary. Local governments enforce most state onsite codes and are closer to the local situation than state government. They know the local population and conditions. They also need to integrate onsite performance standards with other water quality pollution issues from urban storm water, municipal treatment systems and agriculture. Local governments are more likely to enforce performance standards that are developed locally. Statewide performance standards are either too strict or too

—An Editorial

Funding NOWRA's Programs Today for Tomorrow's Industry Needs

Linda Hanifin Bonner, Ph.D., NOWRA Executive Director

Several of the important actions occurring at the June Board Meeting are reported in the Headquarters Update. All of them either affect or impact the financial resources of the Association in one way or another. Whether the action is signing contracts with others to secure special program funding, or prudently managing the overall finances of the Association, there is one important message. For NOWRA to succeed in its leadership role to represent the interests of onsite industry members, we must also be successful in having the financial resources necessary to get the work accomplished.

Model Code Update

Each year, NOWRA reports on the lenient relative to site risk in most applications. "Too lenient" is a health and environment risk. "Too strict" adds unnecessary costs to homeowners. While many discount the cost issue when developing safety codes, it is very important in code enforcement because local regulators tend to underenforce statewide performance standards if the cost to the citizen is too high for the site risk.

The state's role should be to facilitate the regulatory process through the state code, guidance and technical assistance. The state can help coordinate the total daily management load (TMDL) program for watershed standards. The NOWRA code is assisting the guidance process by developing a Guidance Document intended to assist state and local policy makers through the efforts of the Guidance Committee headed by Jean Caudill, Ohio Department of Health.

The NOWRA Model Performance Code Committee meets again in September to finalize draft documents to be presented to NOWRA membership on November 11th in a post conference session in Albuquerque, New Mexico. Documents will be provided on the website prior to the conference.

funding received from various sources, and how it is spent on behalf of its members. There is a perception that membership dues fund the operations of the Association. Unfortunately, that is not the case. Currently, the membership dues received from the State Groups (at $20.00 per member) represents a modest, but meaningful contribution to the overall amount needed to manage the association. And there is resistance, at this time to making any changes in this paradigm. So the challenge is – how to obtain the funds from other sources to keep the headquarters work ongoing and proactively represent the membership on critical issues such as the UIC.

At the same time, NOWRA supports its states in their ongoing activities to build its membership base. An example of this support is that NOWRA initiated the first of several key initiatives over the past eighteen months, directed to supporting state groups in their endeavors, and to assist them in managing their bottom line.

- Free website hosting and support services.
- Access to Directors and Officers liability insurance.
- Database, organization and financial management support.
- Education and Training Partnering.
- Revenue sharing for the Online Locator Program.
- Officers and materials available at state meetings.
- Presentation support for state and official meetings.
- Representation at national agencies on behalf of member interests – the most recent issue of which is the Underground Injection Program (UIC).

At its June 2003 Board meeting, the NOWRA Fundraising Committee presented several strategies that were accepted, actions approved in December, and are now being implemented.

- A restructured Business Benefit Program with a unique Online Services and Products Locator.
- Pursuing new grant opportunities and requesting extensions of others.
- Establishing partnership with key organizations.
- Securing the services of a professional fundraiser.

The goal is to increase NOWRA's financial resources, in order to increase our efforts to represent and protecting member interests.

What will the funds be used for?
Specifically, NOWRA is going to require significant resources in several areas. First, funds are needed to implement the education and training program; and second, to support the states in a major grass-roots legislative initiative, which evolves from and is related to the Model Performance Code. (see article on page 8.) Several of NOWRA's member states already have professional lobbying services; but there are many more who do not. This past month, letters were sent out to over 200 onsite businesses – both members and non-members, requesting either a donation or monthly contribution. Just think, if 100 businesses, each donated $500 per month for a year, look at what our goal could realize.

Our next step is to reach out to the businesses and organizations that the onsite industry affects, with a professional fundraiser. Initiating these actions today does not mean that NOWRA will receive immediate responses and funding. To the contrary, it may be months and even a year, before we successfully attain the finances we need to pursue the actions we must take today.

The onsite industry is changing – and for NOWRA to effectively represent its members' interests, those involved in creating the programs must be one step ahead of these changes. But without your support, we cannot be as effective as we need to be.

2004/2005 "Grassroots" Onsite Industry Legislative Agenda – *Taking Action State by State*

The 2004 election season is gearing into full swing this summer as candidate campaigns increase their appeal for voter recognition both for state and national offices. At the same time, state committees under the direction of staff members are holding meetings to identify needed new legislation and amendments to existing regulations for the 2005 sessions.

What better time exists for NOWRA members to "TAKE ACTION" and get information about the onsite industry to the people who make the rules? What better time exists to make our voices heard about the funding needs that exist in states and communities for onsite systems? But without a concerted, well-orchestrated plan enacted by NOWRA and its state Constituent Groups, the ability to support new or to amend existing regulations and to obtain funding for replacement onsite systems and research will not occur. Similarly, the enforcement of onsite system inspection requirements and provisions for education, training and certification will continue to be further affected by state cutbacks.

In developing this action plan, NOWRA is providing state leaders with:

- A step-by-step guide that includes fact sheets, model letters and press releases.
- Information materials about the onsite industry to provide to legislative staff members, public officials and candidates,
- A framework or model legislation for use in respective states, and
- Staff support to assist in accomplishing this endeavor.

A new link on NOWRA's Website is being set up specifically to facilitate the Onsite Industry Legislative Agenda. However, this plan will only succeed if we work together and consistently contact key individuals through letters, emails, and telephone calls – with specific, targeted messages.

What is the "Grassroots" Onsite Industry Legislative Agenda?
Under the guidance and direction of the NOWRA headquarters office a progressive and collaborative "volunteer" effort is being initiated to raise the visibility of the work of the onsite industry, to ensure that needed legislation is enacted to facilitate and fund this work, and to further the standing and leadership of this national organization.

Who's involved?
Every member within the **onsite industry** has a role in this program – that is driven by the energies of the state groups' actions to achieve the designated goals. In addition, NOWRA is contacting key national groups to work with as partnering organizations, such as the national association of county officials (NACO), the rural community assistance program (RCAP), and the U.S. Dept. of Agriculture Rural Development Program are being asked to support this endeavor. Meetings with these groups are being scheduled.

Why is this Program Being Conducted?
The primary purpose is to fulfill three of NOWRA's seven strategic framework components – system management, education and training and licensing/certification. The only way that these components will become reality is through legislation – primarily at the state and local levels of government. At the same time, NOWRA's model performance code – which is a product of NOWRA's first strategic framework component of performance requirements, must be accepted by local, state and federal governing entities.

Where does the "Grassroots Legislative Agenda" take place?
This is a national volunteer program that begins within communities—with local and state governments. It is conducted by NOWRA state Constituent Groups under the guidance of the NOWRA Board of Directors.

HOW TODAY'S REGULATIONS AFFECT TOMORROW'S ONSITE SYSTEMS

Fact # 1 – The Regulatory Decision-Making Process
Most states and local governments have regulations that use prescriptive codes to make decisions about the location and use of onsite systems. Often relying on outdated system design and permitting requirements, local and state regulators do not take into account the relationship of technology with the receiving soil and site conditions. As a result, the decision-making process about the effective use of newer technology for onsite systems is flawed and often contradictory to the goal of protecting water quality. A prime example of these flaws is where recent advances in onsite system technology have provided significant improvements, but the ability to implement them is blocked by regulations that were adopted a decade or more ago.

Fact # 2 – Industry Education, Licensing and Certification
Some states have continuing education and training requirements and a certification process to insure that onsite professionals are technically competent to provide services. To fill in knowledge gaps that may exist, many manufacturing companies require that service providers using their products attend training courses. However, in many states persons are performing services such as installations, maintenance and onsite system designs without being properly educated about the newer technology or trained on procedures and techniques to protect water quality. In addition, the monitoring and follow-up inspections of onsite systems and related enforcement procedures are often limited or neglected due to a lack of clearly defined procedures and ongoing training requirements.

Fact # 3 – Owner Education About Management and Service
There are several issues affecting the education of owners about the proper

use, operation, and servicing of their onsite systems. First, when the education requirements are not included in regulations, often it is a step that does not occur. That is not to say that information is not available. When it is available, it may not always get into the hands of onsite system owners, because it is not considered important by those who have access to the information. Similarly, when information is provided to owners by service personnel, it is often specific to the system being installed, and highly technical. At the same time, many of the materials available are not addressing the management questions about newer technologies. As a result, many new onsite system owners today who have purchased sophisticated onsite system components, often do not realize they have invested in a "treatment system" that is installed on their property which requires routine servicing, just as the automobile investment does.

These primary facts, together with the ongoing work of NOWRA, represent the driving forces to establish the NOWRA 2004/2005 Onsite Industry Legislative Agenda.

NOWRA'S ONSITE INDUSTRY LEGISLATIVE AGENDA COMPONENTS

Just as there are three primary facts representing the driving forces, there are three components that form the basis for the onsite industry legislative agenda in 2004.

1. The NOWRA Model Performance Code.

A professional group within NOWRA has been working for the past three years to produce a model performance code. It is a document that provides policy officials with a decision-making process for onsite systems. This draft document will be presented at the NOWRA Conference in Albuquerque, NM, November 10.

Proposed Legislative Action.
NOWRA recommends that states move towards adopting performance-based codes for making decisions about onsite systems, either through revisions to current codes or by establishing new ones, based upon NOWRA's Model Performance Code.

2. Professional Standards of Competence and Conduct.

"Licensing/certification of all practitioners is the fundamental link to maintaining high standards of competence and conduct within the industry. Continuing education is a central tenet for licensing and certification programs, and should be term-limited, but renewable following documentation of fulfillment of minimum continuing education requirements. Also licenses and certifications must be revocable if the holder is found to be negligent or fraudulent." Adopting performance-based codes further necessitates the need for professional education and licensing.

Proposed Legislative Action.
NOWRA recommends that states enact legislation for the licensing and certification of onsite professionals that includes ongoing professional education requirements, as a part of their overall onsite program.

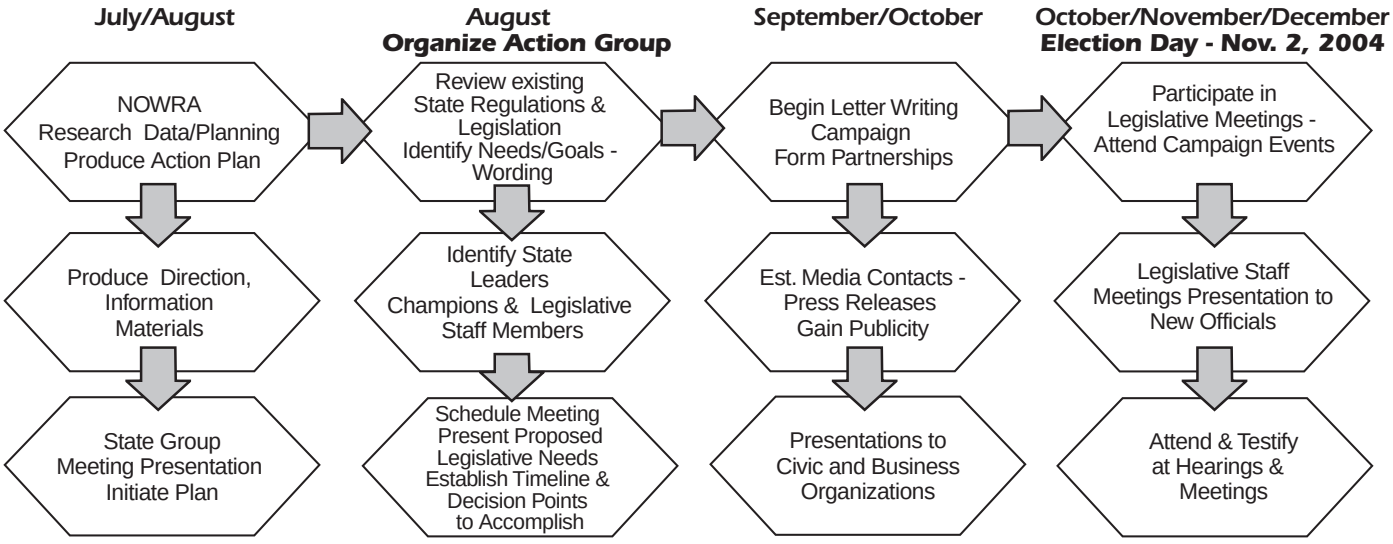
3. To attain the industry mission ...

"to achieve sustainable development while protecting human health and environmental quality," onsite systems must receive routine servicing and monitoring. This is a key component of owner management and operation procedures.

Proposed Legislative Action.
NOWRA recommends that states require inspections to occur prior to completion of a real estate sale, and that the onsite system located on the property be inspected by a "certified and licensed" professional, to ensure that all components are operational. Further, that all system owners be provided with information regarding operation and maintenance of their onsite systems and that service contracts are included in all management programs.

With these three actions, the NOWRA 2004/2005 Legislative Agenda is established. As this work continues into 2005, it is expected that additions to the "Agenda" will occur. This program has no ending – we are only just beginning this significant endeavor and sincerely hope you will join us.

2004-2005 "Grassroots" Legislative Action Plan



NOWRA State Leaders Convene in Kansas City, Aug 4-5

–Preparing for 2005 Legislative Sessions and Moving Forward with Sustainability and Survivability

Recognizing the need to address many of the issues affecting association membership growth and retention education, legislation, changes in NOWRA's by laws and organization that are needed – that we don't have time to accomplish during the annual conference meeting, leaders from NOWRA's State Constituent Groups convened in Kansas City, August 4 & 5. The 1-1/2 day program was led by NOWRA's Executive Director, Linda Hanifin Bonner and WOSSA's Executive Director, John Thomas. Also participating in the program were Tim Frank (NOWRA President), Raymond Peat (NOWRA Vice President), Tom Fritts (NOWRA State Group Committee Chair) and Robert Himshoot (NOWRA Legislative Chair). The ultimate goal is to begin integrating state programs and developing strategies for a 2005 National Action plan addressing revenue enhancement, education and legislative actions.

The first sessions began Wednesday afternoon with a discussion of ongoing issues facing states in their work in the onsite industry. In addressing these issues, Linda Hanifin Bonner presented the following proposed discussion strategies that include:

- Recommended changes to NOWRA's By-Laws and operations and their affect on State Group's documents.
- Preparing and organizing for the 2005 Legislative Sessions in 2004 and taking advantage of the 2004 election campaigns. A presentation on the NOWRA Legislative Agenda was provided with specific step outlines and materials prepared to get this effort underway.

During the dinner break, the sharing of experiences and defining strategies continued, with a short session later in the evening, addressing issues confronting the industry. On Thursday, the group engaged in interactive sessions.

Leadership Skills –
John Thomas, WA Executive Director, addressed how leadership is demonstrated in an organization in an effective way - how leadership moves through decision-making and action from Boards to state levels. What a successful leadership model looks like in a functional association and how we market our association's strengths.

Membership Growth & Retention –
Linda Hanifin Bonner, NOWRA Executive Director
Growing together – building together for a stronger industry. This discussion addressed what States are doing for NOWRA to make the organization stronger as whole; mentoring other state groups, and developing strategic plans to address states' ongoing issues.

2005 Education and Training Programs –
John Thomas
What's working, what's not – preparing training centers for certification – marketing training centers against local and regional competition. Bottom line – what makes a quality education program? Building programs around best practices

Ohio's Quality Installer Assurance Program –
Ralph Benson updated the group on Ohio's program.

Association Management: finances, database, etc. –
Linda Hanifin Bonner led the group discussion on the biggest issues facing managers – how to obtain a clear monthly status report – key elements in budgeting - what boards need to know – different approaches for reports.

The concluding work in the afternoon defined the steps and resources needed for NOWRA's future work in a 2005 Action Plan. An update on this work is on NOWRA's Website.

Delaware

Delaware 8th Annual Onsite Conference – scheduled to occur, October 19-20, 2004 – Delaware State Fairgrounds – features *"Working Together on the Advancement of Onsite Professionals"*
The 8th Annual DOWRA Conference preparations are completed with the technical education program promising to be the best ever for onsite professionals. This year's conference will be held at the Delaware State Fairgrounds, in Harrington, DE. Participants will stay at the Holiday Inn Express Hotel & Suites, across the street, at a special group rate of $106.92. Hotel reservations are made directly by calling (302) 398-8800.

The Conference theme, Working Together on the Advancement of Onsite Professionals" will begin with a keynote address by NOWRA's Executuve Director, Linda Hanifin Bonner. Conference topics will focus on siting criteria, design, construction techniques, inspection and management of onsite treatment and disposal systems for community and individual use. Several of NOWRA's well-known experts are invited to address and present on these topics. Dr. Jerry Tyler (Soils), David Gustafson (Inspections) Randy Kertes (Soils), Tony Stoctus (Pumps), Brian Corwin (LLP's), Andrew Lake (National Environmental Service). An exhibitor section is also being set-up.

Additional information can be obtained by contacting Hilary Moore, at 302-739-4762, or going to the DOWRA website – www:/dowra.org

Pennsylvania

PENNSYLVANIA HOSTS SUCCESSFUL EDUCATION PROGRAM

For the third year, the Pennsylvania Onsite Wastewater Recycling Association (POWRA) held their annual meeting June 16th at the Delaware Valley College in Doylestown Pennsylvania. Dr. Jim Diamond, Dean of Agriculture and Environmental Sciences, at DelVal, welcomed the 60 POWRA members and other interested parties. This year's meeting theme focused on Wastewater Nutrient Management for Individual Residential and Small Community Wastewater Systems.

Bob Mayer, PE, NOWRA's Past President and NOWRA's Chair of Technical Practices committee introduced the topics with a presentation on "The Importance of Nutrient Management". Tom Franklin, PE, of the Pennsylvania DEP presented an update on DEP's new "TVP Protocol," for the testing of new technologies. Mark Sigouin, PG, of the PA DEP, presented to the group how effluent nitrate limit are determined. Dr. Albert R. Jarrett, PE, Professor of Agricultural Engineering at the Pennsylvania State University gave us all a very entertaining presentation on "How are Nutrients removed from Wastewater."

Dr. Matt Byers of the Zoeller Company discussed nutrient removal with Recirculating Sand and Gravel Filters. Raymond Peat of Bio-Microbics, Inc. in his presentation on Attached Growth Media, stirred up some very interesting back room discussions on effluent concentration verses the mass of what is actually removed. Sam Carter of Orenco Systems, Inc. reviewed Textile-Based Packed Bed Filters. Dr. Reza Shams of US Filter Memcor, presented conventional biological nutrient removal systems used in many larger treatment plants and introduced to the group membrane technologies for use where very high removals of nutrients are removed. This was of particular interest in the southeast region of Pennsylvania where high background levels of nitrate are present.

POWRA is grateful to Larry Hepner and his staff for making sure we were all comfortable and well fed. POWRA would also like to thank American Manufacturing, Cope-Wardell-Ammon Associates, Inc., Envirep, Inc., TLC Environmental, Inc., PreDoc, Inc., Riordan Materials Corporation, and Yerkes Associates, Inc., who helped sponsor our meeting.

New Jersey

The New Jersey Onsite Wastewater Recycling Association announces its first technical education conference and membership organization meeting, on September 23, 2004, at the New Jersey Eco-complex in Bordentown, NJ.

What's the Conference About?
The Conference theme "SMART Wastewater---SMART Growth" focuses on the important role that onsite (and septic) technology and treatment systems will have in addressing existing and future environmental planning issues. The state of New Jersey has been managing onsite systems since 1953. However, while the State enacted prescriptive legislation, (NJAC 7:9A) on system design and installation, the need for professional and public education about management procedures is paramount. In addition, attendees will have an opportunity to meet and visit with equipment manufacturers and distributors, to learn about the new technology and treatment systems available to protect groundwater resources, while providing sustainable development.

The Keynote Address—*Smart Wastewater for Smart Growth* will be given by Dr. Robert A. Rubin, Professor of Biological and Agricultural Engineering, North Carolina State University. New Jersey is honored to welcome Dr. Rubin who will address the benefits of managed approaches to onsite wastewater recycling. The approaches being discussed include gray water treatment, wastewater reuse, advanced technology, and how these options accomplish the national water quality goals (through the TMDL process). Dr. Robin will also discuss the important role of onsite wastewater recycling in achieving sustainable land use patterns and development strategies. Specifically, how decentralized development using onsite wastewater treatment can occur without breaking the water cycle, and how management approaches will stimulate the industry to become a permanent and sustainable element of the nation's infrastructure.

Also featured is the NOWRA Model Performance Code, with Michael Corry, NOWRA Committee Chairman; Smart Growth Factors in New Jersey with George S. Hawkins, Esq., Executive Director, Stony Brook-Millstone Watershed Association; A Case Study on Re-Use and Recycling of Wastewater, Ed Clerico, President, Alliance Environmental, LLC; Inspection Protocol for Real Estate Transfers, Tom Cahill, REHS, Manager, Russell Reid Inspection Division; the Pinelands Pilot Program for Alternate & Innovative Technology, with Ed Wengrowski, REHS, New Jersey Pinelands Commission

Who Should Attend?
The target audience for the day-long educational sessions includes municipal and environmental officials, regulators, construction and building industry, public health officers, sanitarians, engineers, service providers, system installers and operators and soils scientists.

Why You Should Attend!
Participants attending this Conference will learn from distinguished speakers about the changes affecting the management, use and application of onsite systems. Even though New Jersey has more progressive legislation, there are now new management procedures to be adopted and put into use, that affect the newer technology and systems being used by homes, businesses and industrial facilities.

NJ is the most densely populated state in the US and with that fact come many special attributes related to the use of septic systems. Dwindling open space has become one of the primary issues in NJ so significant efforts geared toward open space preservation are underway. Some of these initiatives eliminate the extension of regional infrastructure into rural areas and thereby create growing pressure on the continued use of septic systems. There are currently over 400,000 individual septic systems in the state presently, many serving commercial and industrial users.

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State Group Happenings

Under current NJ Regulations, every septic system that has a design flow in excess of 2,000 gpd is regulated under the NPDES program (NJPDES in New Jersey) and is treated as though it were a full fledged Discharge to Ground Water (DGW) treatment facility, regardless of the property size or the nature of the actual use. This will mean that NJOWRA will be directly involved in the evolution and administration of the NJPDES regulations as well as the NJDEP regulations governing all individual on-site systems that are less then 2,000 GPD. Presently, the NJDEP is drafting a "Mega Rule" that integrates all the various water quality regulations under one umbrella; surface water quality, ground water quality, storm water management, water quality planning, potable water diversion, septic system regulation, etc. Incorporated into this Mega Rule are the concepts of TMDL and Watershed Management, both matters that will directly interrelate with future septic system programs.

2004 MD STATE FORUM— CALL FOR PRESENTATIONS

The Maryland Department of the Environment is sponsoring the13th Annual State-County Ground Water Symposium on Wednesday, September 29, 2004, at the Columbia Hilton Hotel. This event brings together ground water professionals from across Maryland to exchange information and promote protection of Maryland's ground water resources. Presentation topics may address a range of subjects from successful ground water protection efforts to innovative technical or managerial solutions to ground water supply or water quality issues. Please note that registration fees are waived for presenters. Additional information can be obtained by contacting Andrea Korsak (akorsak@mde.state.md.us).

PLEASE NOTE: Registration forms will be mailed to you after July 30, 2004.

Presentations will occur on the following topics:

- Ground Water Management/Protection Strategies
- Ground Water Supply Planning for Communtiy Water Systems
- Demonstration Projects/Modeling of Ground Water Resources
- Water and Sewer Planning
- Drinking Water Quality Issues: Lead, Arsenic, MTBE, etc.
- On-site Sewage Disposal Systems and Management
- Well Construction
- Source Water/Wellhead Protection Plans or Programs
- Ground Water Contamination Investigations/Remediation Technology for Ground Water Management (GIS, Modeling, etc.)

Certification of Onsite Practitioners—*NOWRA Point of View*

Presented by Mike Corry, NOWRA Model Code Committee Chair
June 23, 2004

The NOWRA code will contain provisions for the certification of installers and other provider and regulatory practitioners. The intent is to recognize national certification programs that are sufficiently rigorous to ensure that certified individuals can adequately perform their tasks. The purpose of this paper is to aid the coordination of programs between NOWRA and NEHA on certification of installers. Following are major discussion points.

- A certification is an endorsement by the issuing agency that the individual holding the certification can competently perform the covered work. Care should be taken not to include the unqualified persons for political expediency reasons. State and local regulators need to decide if the certification is mandatory or voluntary. If voluntary, then those unable or unwilling to take the certification exam can still continue to install systems.
- The NOWRA Model Framework proposes that all onsite practitioners be certified.
- The NOWRA Model Code currently identifies the following classifications for certification: construction inspector (regulatory (R)), designer, installer, maintainer/operator/pumper, operation inspector (R), plan reviewer (R) and soil evaluator. A single installer may perform several or all of the distinct provider services if qualified in those areas.
- Most NOWRA classifications will have multiple certification levels. The reasons for multiple levels are as follows:
  - ~ A range of skills exists within the classifications from simple or narrow skills to complex and broad skills. One geographic market could have uniform soils that require only conventional designs, while other areas require the market to provide skill in all designs. Or the market is differentiated in that some firms only install simple designs and others the more complex designs.
  - ~ If a single certification is offered then it must inevitably be aimed at either the high, low or the midpoint of the simple/complex and narrow/broad skill range. If complex and broad, those with skills at the lower end could be excluded from the industry even if they are competent in a lower skill or limited practice area - if certification is needed to work. If aimed low, the individual will be authorized by the certification to do complex/broad high-end work for which they are not qualified. If in the middle, both of the previous situations apply. None of the of these circumstances are technically responsive or politically sustainable.
  - ~ The model code proposes three or more certification levels for a classification like installer:
    Level I – Basic assessment of general construction skills based KSA - allow installation of simpler systems such as conventional systems. At this level, providers know how to install simpler systems according to plan and can recognize basic nonconforming soil and site conditions. Additional endorsements can be added to Level I certifications as skills are demonstrated on specific additional designs - example drip, pressure and etc. For proprietary components the manufacturer will provide the endorsement. For non-proprietary the endorsement can be issued by a approved training organization.
    Level II – The individual has demonstrated KSA including the how and why of the general treatment process of the specific process of an individual design and can install a broad range of designs (simple and complex) after a brief orientation. The individual has advanced KSA to diagnose problems with the soil and site during installation and can troubleshoot operating systems.
    Level III – Master Installer - This person is a Level I or II installer can demonstrate to the regulatory agency by experience that little or no regulatory supervision is needed for systems previously installed. Further, the Master can demonstrate the KSA necessary of planning, job control and as-built drawings. The model code will contain provisions to allow a Master to start and close most sites without regulatory inspection.
- Continuing education directed to the KSA of the installer classification and to any existing manual of installation is a critical function for all levels.
- Certification can also apply to organizations, processes and objects (treatment systems).
- Certification is part of a series of integrated activities when it involves people:
  - ~ Standards development around required knowledge, skills and ability (KSA) - structured exam sets passing point as the standard
  - ~ Evaluation (the exam)
  - ~ Listing (certification)
  - ~ Operational audit – verification of operational conformance to standard
  - ~ Enforcement – suspension of or limitations on certification for violations
  - ~ Training - both pre-certification and continuing
- Certification instruments should be developed by the private national organizations such as NEHA, NSF, NOWRA and the like and be recognized in codes. The reasons are as follows:
  - ~ The cost of developing validated certifications that measure the applied knowledge, skills and ability (KSA) needed by practitioners is significant, larger than most state or local governments are willing to spend. The economies of scale of a national skills exam development are obvious.
    - ° The state code would recognize persons holding the national certification as meeting the technical skills for the job.
    - ° State governments can still test for state code knowledge.
    - ° Enforcement of Certification – Few states actively enforce certification requirements against bad actors in the field because of the

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Certication–*continued*

political, time and energy costs needed. A national certification organization can add a second layer of enforcement because requirements could be enforced by both the national organization and regulatory agency. If work within the state requires national certification and if the national agency revoked the certification for cause, then the state certificate would automatically be revoked. The state could also revoke for cause.

  - ° States and local trade organizations can concentrate on delivering training in support of the certification process. They can also participate in the administration of the certification process.
  - ~ A national certification, if recognized by codes, permits job mobility across political boundaries.
- A job analysis done for higher-level skills automatically chronicles the subset of skills needed for Level I. It is efficient to do all levels in one process.
- The national certification function does not compel local and state governments to adopt the certification program. It is simply a tool for them to use if they decide to do so. It is also a marketing tool for installers and a quality assurance certificate for homeowners.

Recommendation: NEHA develop a multiple level certification program for installer similar to those listed above.

NOWRA's Role in Developing Installer Certification Requirements

On June 22-23, a delegation of NOWRA Installers and Regulators participated in the first NEHA meeting to address the development of an installer certification program. The National Environmental Health Association (NEHA) under a grant from the EPA is developing the certification criteria for the onsite industry installer function. A stakeholder group, with many NOWRA members, met in Denver, Colorado to assist in the job analysis being conducted by Heidi Stiegman, NEHA Credential Coordinator and Christl Pokorney, Project Coordinator.

The stakeholder group represents a diverse group of interested persons and subject matter experts. Members attending include: Tony Smithson and Doug Ebelherr from Illinois, Bob Rubin and Nancy Deal from North Carolina, Roman Kaminski and Mike Corry from Wisconsin, Ralph Benson and Tom Frank from Ohio, Jack Myers from Florida, Ronnie Thomas and Mike Lynn from Virginia, Dick Bechtel from North Dakota, Russell Martin from Maine and Eugene Bassett from New Mexico. Steve Steinbeck from North Carolina was unable to attend.

The job analysis is a process used to document the tasks of a profession, the importance of the tasks, and the knowledge, skill and ability (KSA) needed adequately perform the function. Additional information is also gathered form other installers to further develop the evaluation tool.

Two major related, unresolved policy issues developed during the group's discussion, 1) Required training and experience (T&E) needed to write the exam, and 2) If one or multiple levels of Installer certification would be offered.

The T&E issue divided the members into the "minimum to none" and "robust" T&E camps with some team members switching points of view more than once during the discussion.

The minimum requirement advocates argued that the evaluation instrument should developed in a manner to screen out the unqualified. NEHA's early decision to use a written examination without a field practicum made this point weaker and complicated the discussion. It was noted that the NSF International certification for Inspector included a written and field practicum as a result of similar discussions. This group was also concerned that the quality of the applicants training and experience was difficult to determine and that the requirements would likely screen out otherwise qualified applicants, such as experienced street and building contractors if onsite experience is required. Further, if the requirement involved experience in onsite installation, it would create conflict of interest because existing contractors would be training future competitors.

The group recommending robust pre-examination requirements argued that simply passing a written examination

was insufficient to determine that the person actually was able to install a system according to plan. This point was reinforced by the NSF International experience of the number of people that did well on the examination but failed the field practicum.

The one credential versus multiple levels presented a different mix of advocates—most of the committee versus cautious NEHA staff. The NEHA staff reported that their intent was to develop a single certification of Installer in a manner similar to their successful Registered Environmental Health Specialist/ Registered Sanitarian (REHS/RS) Credential. Staff reported that the single credential was efficient to administer and that the efficiency allowed the fees to be reasonable. The stakeholder committee, after a long discussion, urged NEHA to develop a multi-level examination to accommodate the full range of installer work. The committee members raised the following points:

- The NOWRA model code will include multiple levels of Installer certifications.
- A range of skills exists within the installer classification from simple or narrow skills to complex and broad skills. A code needs to be responsive to that range of skills so that both the qualified individual that installs only a single simple design and one that installs a broad range of complex designs can each adequately evaluated and pass the examination. The goal is to design an instrument that screens out the unqualified and allows the qualified to pass.
- If a single certification is offered then it must inevitably be aimed at either the high, low or the middle of the simple/complex and narrow/broad skill range. If aimed at the complex and broad, those with skills at the lower end could be excluded from the industry even if they are competent in a lower skill or limited practice area. If aimed low, the individual qualified to only install a single design will be certified as able to install the most complex designs.
- The stakeholder group recommended that three certification levels be developed for installer:
  Level I – Basic assessment of general construction skills based KSA - allow installation of simpler systems such as conventional systems. At this level, providers know how to install simpler systems according to plan and can recognize basic nonconforming soil and site conditions. Additional endorsements can be added to Level I certifications as skills are demonstrated on specific additional designs - example drip, pressure and etc. For proprietary components the manufacturer will provide the endorsement. For non-proprietary the endorsement can be issued by an approved training organization.
  Level II – The individual has demonstrated KSA including the how and why of the general treatment process of the specific process of an individual design and can install a broad range of designs (simple and complex) after a brief orientation. The individual has advanced KSA to diagnose problems with the soil and site during installation and can troubleshoot operating systems.
  Master Installer - This person is a Level I or II installer who can demonstrate to the regulatory agency by experience and history that little or no regulatory supervision is needed. Further, the Master should demonstrate the KSAs necessary for planning, job control and as-built drawings. The NOWRA model code will contain provisions to allow a Master to start and close most sites without regulatory inspection.
- Continuing education should be required for renewal of the certification. The training should be directed to the KSAs of the installer classification and to any existing manuals of installation. The NOWRA code will contain provisions for continuing education.
- The NOWRA code will also contain provisions for regulatory recognition of the NEHA credentials for the skills necessary to do the job. The regulator can then limit any additional tests to areas of local code knowledge.
- The NEHA certification program should also include a mechanism to enforce the conditions of the certification. One committee member urged that a statement of ethics be included in the certification as it is part of the NSF certification for Inspector.

At the end of the meeting the NEHA staff indicated that consideration of both issues will remain active until final resolution. The issue of minimum/ robust T&E will be raised in subsequent communication with industry practitioners. The issue of a single or multiple certifications will be discussed within the NEHA organization. Their major concern was the ability to develop a multi-level certification process at a cost that will allow the fees to remain in the reasonable range.

Members of the stakeholder group expressed their appreciation to the NEHA staff for a well run meeting and a good evaluation development process.

MEMBERS OF THE INSTALLER COMMUNITY – NOWRA NEEDS YOU TO WEIGH IN AND GIVE US YOUR OPINION ABOUT THIS MATTER. A POLLING CENTER HAS BEEN SET UP ONTHE NOWRA WEBSITE. PLEASE GO TO THE SITE AND GIVE US YOUR VIEWS.

The Maintenance Imperative

—by Brenda R. Guy

Onsite system installers must embrace maintenance as an integral part of being in the business of advanced treatment systems

It is increasingly clear that proper operation, maintenance and servicing of onsite treatment systems is crucial to producing safe and acceptable effluents that protect human health and the environment.

Aerobic wastewater treatment systems are a viable form of alternative treatment where conventional septic systems are not allowed. Aerobic systems that are properly designed, installed, operated and maintained can produce extremely high-quality effluent. Industry professionals who learn to install these systems as well as provide long-term maintenance can establish a new and profitable line of business.

Nature's way

All aerobic systems work by using bacteria provided by nature. In essence, they put into a confined process the same kinds of biological processes that occur in a traditional drainfield. As air is introduced to the system, the bacteria grow and thrive in much larger numbers than would occur naturally. These bacteria speed the breakdown wastewater, making it safe for release to the environment.

All onsite wastewater treatment systems require some level of maintenance. Even though the physical and biological processes occur automatically in an aerobic treatment unit (ATU), owners must follow the manufacturer's operation and maintenance requirements to ensure that the system performs to its capabilities. One distinct difference between an aerobic system and other alternative systems is that homeowner abuse reveals itself much sooner, producing a warning that the system is malfunctioning. This warning, usually in the form of an odor or alarm indicator, allows a timely response. In this way, problems are corrected before the system fails and a danger to human health or the environment is created.

Just the facts

Every ATU must have a comprehensive operation and maintenance (O&M) manual that serves as valuable aid to a trained service technician and as an educational tool for the homeowner. The homeowner, after all, is the principal user of the system and must clearly understand how it works. The O&M manual should include:

- A description of the system.
- Its basic mechanical and electrical components.
- Diagrams and drawings.
- Maintenance schedules
- Sampling procedures.
- Pump-out procedures
- Troubleshooting guidelines.
- Warranties.

The cover of the O&M manual should list the manufacturer's and service provider’s names, addresses, and telephone numbers, along with the model number and rated usage in gallons per day (gpd).

Keeping it working

After the system has been started, the service provider must spend time with the owner. The more the owner knows, the fewer problems he or she will encounter. All ATUs in widespread use today are certified to ANSI/NSF Standard 40 and have a required two-year inspection period. During that period, a variety of maintenance procedures are necessary.

A technician must make an inspection and service call every six months. This includes inspection, adjustment, and servicing of the mechanical and electrical components as necessary to ensure proper function.

A technician also must make an effluent quality inspection every six months. This consists of a visual check for color, turbidity and scum overflow, and a check for odors. A sample should be pulled from the aeration tank at these inspections, as described in the manual's Solids Removal section, to determine whether an excess of solids exists in the system. If so, the user bears the cost and responsibility for having the system cleaned.

If the technician observes any malfunction that cannot be corrected at that time, he or she should notify the user immediately, in writing, and give an estimated date for correction. Upon completion of the first two-year period, the servicing contractor should offer the homeowner an annual renewable service policy, affording the same coverage as the initial two-year service plan.

Investigating trouble

Homeowners' habits are the most important factor in ensuring a long life and minimal maintenance in ATUs. Homeowners should be aware of the need to call the service provider if problems occur between the scheduled service visits. A problem may show itself as an equipment alarm situation or as an odor —often an early warning sign of a malfunctioning component or abuse of the system.

If in inspecting the system the technician finds no apparent problems, it is necessary to look deeper. A discussion with the homeowner may reveal the key reason for the trouble. It could be as simple as a leaking toilet or faucet. It also could be that a toxic or corrosive substance has been flushed into the system, or that an activity in the home is upsetting the system.

All ATUs have alarm circuits to detect air pump malfunctions and high-water conditions in the tank. There may be additional alarms to detect problems with dosing pumps, level float switches, and other devices. Alarms must be investigated and the related problems remedied. The technician should take a mixed

liquor sample from the aeration chamber to determine the suspended solids content of the wastewater. This helps in trouble-shooting and in deciding whether the unit requires pumping. The technician takes the sample using a graduated cylinder and allows it to settle for 30 minutes. If the suspended solids level reads greater than 60 percent in the cylinder, the unit should be pumped out.

Most ATUs can be brought back to like-new condition simply by having the unit pumped and the aerator replaced. In the absence of any other apparent problems, this like-new condition can provide a baseline for further evaluation of homeowner practices.

In such a situation, the technician and homeowner should carefully monitor the unit's performance to help determine the source of the problem. In particularly difficult situations, the manufacturer should be consulted for assistance.

On the record

In the long run, a service provider can ensure a properly operating system by keeping accurate records of routine and other inspections and service in the system maintenance log. The inspection report should include:

- Owner's name and address and date of installation.
- Type of system, treatment, pumps, and disposal method.
- System capacity.
- Reason for the call (routine service, alarm, odor or malfunction).
- Indication of the condition of all mechanical and electrical components as well as effluent quality.
- Any corrective actions taken or services performed.

It's not a tiger

The most common misconception about aerobic treatment systems is that they are maintenance intensive. This view has changed significantly as the industry realized that all onsite systems require maintenance.

The truth is, most aerobic treatment systems are simple, reliable, and easy to maintain. The level of maintenance, of course, varies with the system's complexity and the users' habits. Just as a well maintained car runs better than one that is neglected, an ATU will operate effectively and efficiently if maintained according to the O&M manual.

Another misconception is that aerobic treatment systems are "mechanical." In reality, many if not most alternative systems are in one way or another "mechanical." Typically, the mechanical equipment is quite simple and is easily understood.

Monitoring performance

The quality and effectiveness of an onsite wastewater systems relates directly to the quality of operation and maintenance. "Performance" has become a watchword in the onsite industry, and correctly evaluating performance is an essential part of establishing a meaningful performance-based approach to treatment.

In industry language, performance relates to the quality of effluent as measured by such parameters as biochemical oxygen demand (BOD), total suspended solids (TSS), nitrogen removal, and fecal colifom count.

Reliable performance measurement calls for standards, techniques and equipment that are accurate and easy to use. Of equal importance is the proper training of the human being who must use the tools.

Poor quality in any of these areas can result in test data that incorrectly indicates poor performance or failure. This leads inevitably to lack of confidence in the treatment technology among specifiers, regulators, homeowners and installers. Then, of course, the axiom, "They just don't work" finds its way into the mind-set of industry players, and an otherwise perfectly good technology loses credibility.

Field evaluation of aerobic treatment systems should be done only by certified, knowledgeable personnel. A certified lab is always the best choice, but if no lab is available, only trained individuals should pull samples, carefully following the guidelines in the O&M manual.

A little care

Aerobic waste treatment systems are safe, simple, and cost-effective. With a small amount of care in operation and maintenance, they will provide extremely high-quality effluent and fulfill an important need where conventional systems are not appropriate.

The Customer Side

Part of a service provider's job is to let the system owner know the basic do's and don'ts of living with an aerobic treatment system. Users should understand that nothing should be put into the system that they cannot eat or drink—other than toilet paper and mild detergents. The owner of a system should be told:

- Do not put grease, fats, and oils into the system.
- Do not run pesticides, herbicides, paints, household chemicals, automotive fluids, or other toxins down the drain.
- Do not discard mop water into the system.
- Do not flush items such as cigarette butts, disposable diapers, feminine hygiene products, hair, coffee grounds, rags, paper towels or bandages.
- Spread out wash loads over the week.
- Do not dispose of citrus products (oranges, lemons, grapefruit).
- Do not use additives for septic systems—they do more harm than good.
- Do not connect other water sources to the system.
- Do not dispose of home brewery waste, strong medicines, or antibiotics.
- Avoid using anti-bacteria soaps, strong disinfectants or bleaches.
- Do not route discharge from water softeners into the system.
- Use cleaning products that are non-chlorine, biodegradable, non-toxic and non-corrosive.
- Use detergents that are low-sudsing, low in phosphates, and biodegradable, with washing soda ingredients.
- Use fabric softener dryer sheets rather than liquids.

Brenda R. Guy is president of Delta Environmental Products, Inc., a manufacturer of advanced onsite wastewater treatment systems and accessories based in Denham Springs, La.

The Need to Develop and Promote Effective Education that Ensures Successful Implementation of Onsite Wastewater Technology

Ralph Benson, R.S.
Clermont County General Health District
Batavia, Ohio

A key question is posed to address the emerging issues within the onsite industry.
"Who is responsible for the proper installation of onsite wastewater treatment systems, and what are the tools needed to insure that quality services are provided?"

In today's world of service, manufacturers, vendors, engineers, designers, installers and management entities all have a financial stake in customer satisfaction and public acceptance of new technology as the alternative to sewer systems. No one within the industry escapes when "problem installations" threaten the acceptance and confidence levels of new onsite technology. When problems are not addressed, the images of products, reputations of installers and the confidence of regulators and policy officials about proposed systems all suffer. Even more, the paying customers suffer inconvenience, stress and loss of confidence in products manufactured, designed and installed to meet their needs and protect the public health and the environment.

No one sets out to make a mistake on a job, but it is fair to ask, "when something goes wrong, whose responsibility is it?" Vendors, engineers, designers, installers, inspectors and regulators all possessing varying levels of skills, competence and experience, also share common goals: successful installations, satisfied customers, regulatory compliance and water quality protection. However, a significant "education gap" exists within all sectors of the onsite industry -- which is a major challenge for us all. Failure to respond to this challenge now will result a major obstacle to successful implementation and slow the acceptance of onsite technology. There is, however a solution — *Quality Installation Assurance Tools.*

Quality Installation Assurance Tools are intended to complement other basic certification and continuing education programs and insurance policies. They are designed to provide guidance and direction for successful implementation of specific components and complete systems. I believe that NOWRA should take the lead to involve its membership in the development of instruments in the most appropriate media formats to provide structure, discipline, consistency and support for responsible professionals who want to do the best job possible.

The Need for Education
Onsite wastewater treatment is growing and will continue to grow as a legitimate means of meeting the increasing need for cost-effective wastewater infrastructure. As growth increases, the time and resources of the people directly responsible for successful installations, inspections and enforcement will be challenged to the extreme. As new and more installers and other practitioners become involved with new and unfamiliar technologies, the question posed is, how will their information needs be met? Assuring that access to education, information and guidance needed must be a high priority (of NOWRA) if an efficient implementation of a competitive onsite wastewater infrastructure that satisfies the needs of customers is to be realized.

Training centers, certification courses, licensing programs, insurance programs, continuing education requirements are all necessary components to keep the skill levels of practitioners ahead of the demands of the marketplace and of regulations. While institutional programs provide a means to help build a solid base of qualified practitioners, and are involved in providing training, by their structure and nature, they often cannot respond quickly enough to the evolving needs of the marketplace. In the meantime, onsite system installations will continue to occur, and often many may be by those who have never had formal onsite training. Who has the responsibility for seeing that the job gets done correctly? How can NOWRA support the efforts of those responsible and help to improve the results? The answer? Quality Installation Assurance (QIA) Tools.

Quality Installation Assurance (QIA) tools
These well-designed procedures help to improve communications among manufacturers, vendors, engineers, designers, installers, contractors, developers, builders, regulators and inspectors. They encourage better designs, more practical construction plans, improved job control, efficiency and competitiveness. As a result, faster acceptance of onsite technology as the cost effective alternative to "pipe and plant" wastewater infrastructure by regulators and by the public, will occur.

What are QIA Tools?
QIA tools are "information packages" targeted to particular needs of a particular audience. They can be provided in many different media formats. In Clermont County's Alternate Technology Program, "planning, installation and startup checklists," customized for specific systems, are evolving with the cooperation of equipment vendors, in response to the need for improved communications. These simple QIA tools are used to:

- Provide structure and content for the all-important preconstruction meeting at the site with all the players involved.
- Focus attention on critical installation issues.
- Improve job control.
- Provide guidance in planning and conducting installations.
- Serve as a reservoir to capture the

experience of others and minimize the repetition of mistakes.
- Document responsibility.
- Document accountability and compliance.

- Provide opportunities for cross-checking between manufacturers, vendors, engineers, designers, installers, inspectors and regulators.
- Foster increased confidence in products and workmanship among inspectors, regulators and customers.
- Provide structure for inspections.
- Make the installation a positively reinforcing experience for all the parties involved, including customers.

Examples of how QIA Tools are used.
Manufacturers and Vendors: At the very minimum, checklists should be developed by each manufacturer of equipment to guide their vendors and the installers through installations. The checklist serves as a guide to lead the engineer or designer, the installer, and the person responsible for approving the installation from the preconstruction meeting on through to the final inspection. Vendors must participate in this process by providing the necessary QIA tools.

Engineers and Designers: Complex engineering plans are not needed on the majority of lots, as pointed out by Jantrania (1998). He also stresses the value of private sector engineers doing "onsite engineering" in support of installers. There is no doubt that the majority of residential systems can be "fitted in the field" by following a handful of fundamental layout and installation-planning principles. A few basic plans, designed with some flexibility to adjust for the limitations of soil types within soil associations and variations in landscape features like trees, can accommodate the range of soil conditions found on a site. The majority of plans can be distilled down to their essence using guidelines and checklists. With the guidance of the designer or engineer at the layout survey, the job can proceed as quickly and as efficiently as possible.

Installers: Installers carry this industry on their backs. We all have an interest in helping them improve their understanding of systems and their job control skills. Job control is the foundation upon which greater efficiency is developed. Greater efficiency is the basis of being competitive in the market place. A good installer will, after consultation with the designer or engineer, make the necessary field adjustments to make a plan work. There are certain critical or "controlling" elevations that need to be accurately determined. Once these are identified, the rest is attention to details, grade and job control and efficient handling of materials. This can be done when the operation and construction of the basic components of the system are understood, and the layout and installation fundamentals are understood. The best installers have the best job control and construction management techniques and use them effectively.

Inspectors and Regulators: Inspectors and regulators should not be directly responsible for quality assurance. The manufacturers, vendors, designers, engineers and installers have a direct financial interest in the successful implementation of onsite technology. They have the primary responsibility for seeing that systems are designed, installed and function to meet the regulations, and more importantly, to meet the ultimate performance goal of protecting the public health and the environment. Inspectors have a role and should be kept in the flow of the information stream with access to all the tools discussed above. They should do their inspection by following the same guidelines and checklists that the installer used. These checklists serve as part of the "as-built" record and as feed back tools if deficiencies are noted.

Developers, Builders and Home Buyers: How will the market give adequate consideration for the value of the onsite industry's products and services? (Jantrania 1998) Developers and builders must learn to recognize the physical assets of a raw lot as a resource to be capitalized upon for wastewater treatment, and not just as space and location for a house, swimming pool, barn, etc. The home buying public needs to be sold on the fact that they have purchased a lot with a resource that can save them money if they protect it, or cost them more money if they ignore it or allow others to abuse it. Quality installation assurance for wastewater treatment systems really begins with lot creation and continues on through the marketing and sale of the property.

A Goal Within Reach
Before this decade ends, the majority of practitioners should be on the same page regarding standards of practice for our profession. But the industry cannot afford to wait until those standards of practice have been hammered out, published and implemented through the traditional educational delivery structure. QIA tools are a means of closing the "education gap" and improving communication among the agencies and businesses whose activities contribute to the fate of wastewater treatment technology.

NOWRA must promote an assessment of the governmental and regulatory processes and the business activities that contribute to the ultimate fate of an onsite system, from lot creation to final approval. Opportunities for improvements that will pay returns to the industry as a whole should be identified and a coordinated QIA strategy developed and implemented. The NOWRA installer membership base deserves this support from their national association.

It will take time for the majority of installers and other practitioners to close the "education gap" within the present and foreseen educational structure. The consequences of failing to address the immediate information needs of people vital to the continuing growth and acceptance of onsite treatment technology are serious. Where does the buck stop for quality assurance? How can NOWRA promote and support Quality Installation Assurance efforts? What are the potential benefits of developing an efficient information delivery infrastructure for the onsite industry? This is an opportunity for NOWRA and the industry to step forward to win the confidence of installers, regulators and the skeptical public.

REFERENCE
Jantrania, A.R. 1998. "Are We Ready for the 21st Century?" *7th Annual Conference Proceedings*. National Onsite Wastewater Recycling Association

The "New" OSSF's— A Change for the Better or...?

By Jeff A. Snowden, P.E., OS5636

In Central Texas, prior to the new OSSF rules of 1997, low-pressure dose systems (LPDs) were the most common OSSFs being installed. Now, about 6 years later, LPDs are one of the least common systems. The most common system now being installed in Central Texas is an aerobic treatment unit (ATU) with either surface dispersal or subsurface drip dispersal. In fact, nearly 50% of all systems permitted in Texas are such systems. The market has changed dramatically. Has this change been for the better?

Undoubtedly, the intention of the new OSSF rules was to improve environmental and public health protection. Perhaps another intention was to provide OSSF's that are designed and permitted for less flow per home, thereby encouraging homeowners to use less of our increasingly limited water resources. Like everything in life, however, good intentions can have unintended consequences. Such is the case in our OSSF industry.

The following statement is just a fact of human nature. If we do not understand the value of something, we look to obtain it at the least price. So it is in the construction industry at large. Because the construction industry is unfamiliar with the myriad of issues associated with OSSF's, they tend to value cheap price over all other considerations. Again, it's just human nature.

We OSSF professionals, on the other hand, should clearly understand that there are numerous other considerations besides a low price. When we only supply the low price solution without advising the customer of the totality of the issues involved in their decision, we create what is now our current problem—an unintended consequence.

On a statewide basis, ATUs with surface application are often the cheapest system to install. They are, therefore, the system of choice for most builders. When a surface application field won't fit due to site constraints, the most common alternative is to use the same ATU, tanks, and controls, but to strap on some additional parts and think that they are now using subsurface drip dispersal fields instead. The designers and installers of such systems are not aware of their limitations, and the eventually homeowners are understandably dissatisfied when the system limitations result in alarms, soggy yards, or bad odors.

In contrast, and on the other end of the spectrum, there are occasions where decision processes work to provide an extremely expensive and unnecessarily complex OSSF solution for a property. While all involved in the decision process are well educated, and well intended, the homeowner again receives an OSSF solution with which they are quite dissatisfied. Nowhere in the entire decision process of an OSSF solution is the homeowner considered. These two examples reveal an unintended consequence of "new" OSSFs—homeowner dissatisfaction.

Homeowners are left with the results of a decision process that usually excludes them completely. On the one hand, and most commonly, the chosen OSSF solution is selected only on the lowest up front cost. On the other hand, the OSSF solution is selected on only the naturally biased opinions of the designer (and occasionally the regulator). In general, the homeowner is not advised of the options available to them, along with the advantages and disadvantages of each of these options. They are not advised of the common trade-offs of lower up front costs with higher ongoing costs. They are not advised of the unfortunate reality of the inability of most service persons to maintain a more complex, or maybe just different and less common system. In fact, they are not even advised of the shortcomings of the "old" OSSFs.

It is not surprising that homeowners are increasingly dissatisfied with their OSSFs. They rightfully feel that each and all of us in the OSSF industry are responsible for advising them of their options, of the advantages and disadvantages of these options, and of a list of owner's responsibilities and system. When we blindly supply only the cheapest solution, or only supply the solution that, in our biased opinion is best, we create and advance homeowner dissatisfaction. We generally do not provide the homeowner with the information to make their own best decision, and they are becoming increasingly dissatisfied.

For instance, we don't tell the homeowner that their system, whether "old" or "new", is now only designed and permitted to handle 60gpd per bedroom plus one instead of the pre-1997 value of 120 or 150gpd. We don't tell them that, on the average, 60 is not such a bad number, but that the system may have troubles at flows above 60, or when their flows go to the low and high ends of their usage spectrum. We don't tell them that all OSSFs, even their "old" OSSF, must be pumped regularly. We don't universally comply with the rules, even, by telling them about what kind of a system they have serving their house. We are so short sighted that we don't even help them understand that they would be best served by voluntarily contracting for a service agreement for preventative maintenance reasons – even on an "old" OSSF.

Let's pursue some of the technical shortcomings of the "new" OSSFs. How do you design for peak flows? How many gallons per minute or per day do you plan on, above the average daily flow? How do you accommodate solids

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Note: *For the benefit of the reader, the word "new" is in quotation marks, because they aren't really new. While there are brands that may be new, ATU's, drip, and the like, are OSSF solutions that have been around since as early as the 1950's. They're "old" to a minority of homeowners, designers, installers, regulators, and homeowners. They're only "new" to the majority of people since their rise in popularity due to the Texas OSSF rules of 1997.*

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management? How many gallons per day of solids will accumulate before the system must be pumped? What do your calculations show the probable pump out time frequency? If you want to increase solids retention, what additional steps will you need to take to maintain the performance of the treatment process? What consideration do you give to the lack of homeowner participation in the operation of their OSSF? Do provide designs or systems that require them to clean their filters or refill their chlorinator when you know they won't? Are you, as a regulator, requiring devices or programs that complicate, and do not improve, the performance of the system? Have you taken into account odor management or control? Can you give your customer a dispersal field that satisfies their desire for something other than a slab?

All of the above shortcomings can be easily addressed, and should be addressed on the very next OSSF you design, permit, install, or license. These are items that will dramatically improve the satisfaction level of the homeowner. We have had 6 years to learn this business, so there is really no excuse for not providing homeowners answers to at least these most basic of concerns.

While there are an entire list of other concerns, most all of these other concerns can be largely addressed by involving the homeowner, or at least putting ourselves in the homeowner's shoes and considering their perspective. If designers, regulators, installers, and service providers would take the extra step of considering and involving the homeowner, several good things would happen. Obviously, we would have fewer complaints from homeowners. Perhaps less obviously, we would have more secure, more profitable businesses, and more enjoyable jobs.

A more secure and more profitable business is the subject of next edition's article. To let you know what's coming, however, here's an excerpt:

Here is a chilling thought for those of you who wish to be in this business for the long haul. Builders only succeed by building what homeowners want. Homeowners are the real customers. Also, homeowners vote. Votes are what motivate the Legislators. The legislature is who directed the writing of the new OSSF rules of 1997. The pen, like the sword, cuts both ways. What was voted into law, can be voted out. What was excluded (plumbers, for example) can be included. If the dissatisfaction levels continue, voters may persuade their Legislators to reconsider all this OSSF stuff that is making voters so dissatisfied.

Remember: When the end user perceives little value in a product or service, they then focus only on obtaining that product or service at the cheapest price. There is only one shining example of success in being perceived as the cheapest, and that is Wal-Mart. None of us has Wal-Mart's business structure, and even more importantly, there is only one Wal-Mart. They have eliminated almost all other low priced competition. Target is hanging on as a distant second, but when you get to third, K-Mart, you see the problem with succeeding in business while always being cheap.

There are many more examples of business failures from being too cheap than too expensive…

Operation, Maintenance & Monitoring —the Wave of the Future in On-site Wastewater Management

Kit Rosenfield, Accredited Septic Monitoring

The evolution of innovative technologies with help from programs like NSF Standard 40 testing, have brought a new level of understanding regarding the need for Operation, Maintenance & Monitoring of On-site Wastewater Treatment Systems. While some begrudge the mandate for OM&M as set forth in the Standard 40 testing, it has at the same time. Leveling the playing field has brought industry attention to the fact that all On-site systems require routine service.

The question now becomes, who is going to perform all this work? I believe it needs to begin with basic training. Programs such as the NAWT Inspector Training and Accreditation Program and an upgrade to NSF Inspector Accreditation are valuable for Service Providers to understand the basics of on-site treatment and dispersal processes. And soon, the Consortium of Institutes will be offering a comprehensive O&M Training Curriculum to take us to a new level of expertise. In addition, many equipment manufacturers already offer specific training for their OEM equipment. This is a valuable service to those who already have the basics, (and could be a dangerous service for those who don't).

However, Standard 40 requirements for most OEM programs address the issue of dispersal maintenance. This important element is considered to be one of the three main components of the system is rarely discussed. As an example, purging, balancing and monitoring of Pressure Dosed Systems is absolutely critical to the performance and longevity of such a system. Similarly, the servicing of Drip Dispersal Systems and Disinfection Units is equally important. Drip Dispersal Systems involve filters, air vent/vacuum breakers and often automated valves that must be checked regularly. Disinfection Units such as chemical injection need testing and verification along with maintenance of the injection unit. UV units must be checked and routinely cleaned to ensure performance.

How about that first component of the On-site system, the user? This, in my opinion, ties directly into the discussion of Standard Gravity System maintenance. Is the recommendation of routine pumping on a set schedule really the answer? Many Pumper's would say, absolutely! Here is a little food for thought: what if you convince your clients to have their systems set up with access risers for easy entry and then have a routine tank inspection, say ever year or two. You would check solids levels to determine accumulation and need for pumping, check tank integrity, then discuss the findings, including any unusual conditions with the homeowner. This would accomplish three huge things.

- One, it provides for interaction and the opportunity of education to the system owner.
- Two, since this service could typically be performed in less than and hour, it would allow you to perform a number of inspections in the same neighborhood.
- And three, it would greatly reduce the hauling and disposal fees for septage, a growing concern at least in my area.

This strategy will typically result in reduced cost to the homeowner along with education, and will result in increased profits for the Pumper/Inspector—and an important win, win scenario for all involved.

All the way around, whether it be Standard Gravity Systems or Enhanced Treatment, there is tremendous opportunity in the field of On-site Wastewater Treatment Systems Operation, Maintenance & Monitoring.

Kit Rosenfield has working in the Environmental field since 1976 and is a Certified Industrial Wastewater Treatment Plant Operator, and accredited by both NAWT and NSF International as a Wastewater Treatment Systems Inspector. He also serves on the COWA Board of Directors.

PRE-CONFERENCE PROGRAMS - SUNDAY, NOVEMBER 7, 2004

(separate registration fee)

Two new pre-conference workshops are featured this year: Introduction to the Qualified Installer Education and Training Course for Onsite Systems and Re-using, Recycling & Reclaiming Wastewater. These workshops take place at the Albuquerque Hyatt Regency Conference Center, on Sunday, November 7, 2004 from 8 a.m. to 5 p.m. They are followed by the Conference Opening Reception in the Exposition Halls at 6 p.m.

Introduction to the Qualified Installer Education and Training Course for Onsite Systems

8 CEU's – Sendero Ballroom

This Introductory Course addresses the installation practices of available technologies within the onsite industry. It provides participants with valuable information on the basic components of the installation process and update service providers on the skills needed to ensure water quality protections. It is the introductory session to NOWRA's future education and training certification program.

Who should attend?
All professional service providers—this program is not just limited to installers. With today's regulations and the future use of onsite systems, all members of the industry benefit with the knowledge of competent installation practices.

What You Will Learn and Use?
The course begins with an overview of the industry's issues addressing the status of installation practices and why this program and future certification is both needed and important to the onsite industry professional. Participants gain knowledge about NOWRA's ongoing work with the Consortium to produce a comprehensive Qualified Installer Education & Training Course leading to certification, and how it relates to the NEHA certification program currently being developed. NOWRA is advocating a national legislative initiative requiring mandatory certification of all professions within the onsite industry. (See NOWRA's website for more details on how you can become involved.)

Major topics in the morning sessions include two opening presentations about the ongoing efforts of NOWRA and NEHA to establish the Installer Certification Program. This presentation is designed to explain how these activities relate to NOWRA's new 2004-2005 Grassroots Legislative Initiative. Other topics during the morning session focus on the business characteristics of installer operations including ethical responsibilities, how to develop quality contracts and agreements, and successful techniques to managing the regulatory and permitting processes.

Safety and professional practices of system installations is another important topic to be covered, especially with legal and liability issues that exist in today's business world.

The afternoon topics focus on the installation procedures and practices for septic tanks and soil dispersal fields (trenches, bed, mounds). There will also be a session on proper pump installation and an overview of procedures for media filters. Following the course, individuals will go to the Exposition Hall to visit the largest gathering of equipment manufacturers and suppliers within the industry.

Why You Should Attend This Education & Training Course!
YOU CANNOT AFFORD NOT TO…your future depends upon it! NOWRA, as the largest association representing the industry professionals, provides the premier of credentialed educators and professionally experienced practitioners as instructors within the onsite world. No other high level of education and training exists for the industry professionals.

Further, the industry is changing. Credentialing requirements of professionals in the onsite industry is now occurring in many states issuing licenses. Participating in these programs will soon be a requirement to obtain your professional license.

Education Course Instructors
This course will be conducted by Dr. Bruce Lesikar (Texas A&M University) and Dr. James Anderson (University of Minnesota) who are also providing the new education and training materials and developing this program for NOWRA.

PRE-CONFERENCE PROGRAMS - SUNDAY, NOVEMBER 7, 2004

(separate registration fee)

RE-USING, RECYCLING, AND RECLAIMING WASTEWATER WITH DECENTRALIZED SYSTEMS WORKSHOP

8 CEU's – Fiesta Room

Water supplies are being heavily taxed and in many situations becoming very limited with governmental agencies putting limits on use. The era of unlimited water use in many parts of the country is over. These issues are not only directed to drier climates, but are now being applied to areas considered to have sufficient water supplies. Never before has there been such significant interest in the practices and procedures of re-using and recycling treated wastewater on site. NOWRA is responding to that information interest and education need.

What You Will Learn!

This day-long workshop provides basic information on

- water and nutrient balance in reuse;
- microbiology of recycling/reuse;
- EPA reuse guidelines, and
- challenges for large and small scale recycling systems and reuse of treated wastewater.

The workshop also addresses integrating onsite and cluster wastewater management concepts into the urban centralized wastewater infrastructure. Speakers in this course represent a diverse group of academic, regulatory and practitioners—all of whom have designed and implemented reuse systems. Additional time for interaction between the speakers and the audience is being allotted, and particularly during the concluding panel discussion.

Who Should Attend this Workshop?

If you are reading this information, then you know you need to be at this session. It is a MUST ATTEND FOR ALL" designers/engineers, installers, regulatory, and policy officials. Even environmental organizations and the public will value greatly from the information provided in this session. It is targeted to help you understand the steps required for the design and permitting process. More importantly, it also addresses the issue as to how to get elected officials and the public to support this concept?

Why You Should Attend this Workshop!

All wastewater is recycled to the environment in one form or another. How we can best maximize its reuse so that we reduce the strain on our valuable water resources is a critical component for may future programs in several geographic areas of the U.S. The *Re-use, Recycling & Reclaiming Wastewater Workshop* is designed to give attendees insights into the application of existing and new concepts, with valuable case studies illustrating examples of ongoing operations. NOWRA's technical education sessions brings to its members the most skilled and credentials educators and professionals in the industry. The education and skills you receive in NOWRA's workshops are not found anywhere else.

NOWRA Workshop Leaders

Under the direction of Dr. James Converse, the technical education and professional expertise for this workshop will be provided by Dr. Ted Loudon (Michigan State University), Dr. Charles Gerba (University of Arizona), James Cicmance, U.S. Environmental Protection Agency, Dr. Robert Rubin (North Carolina State University) Troy Vassos (NovaTec Consultants), Fred Gains (Applied Water Management Inc) and Dr. Kevin White (University of South Alabama). There will also be a full afternoon session on Recycle/Reuse on Tuesday, November 9.

NOWRA'S POST-CONFERENCE PROGRAM ACTIVITIES ALSO ADDRESS INSTALLATION PRACTICES AND RE-USE AND RECYCLING OF WASTEWATER IN THE PLANNED FIELD TRIPS.

Monday, November 8, 2004
NOWRA Opening General Session—
8-10 a.m. – Sendero Ballroom

What are the challenges and issues facing the onsite industry in re-using, recycling and reclaiming wastewater with decentralized systems. What are the actions needed to go forward into the future.

NOWRA's 13th Annual Conference officially opens with a Monday Morning General Session hosted by NOWRA's leadership. Setting the tone for the technical education sessions occurring over the next two days with the theme conference message - re-use, recycling and reclaiming wastewater with decentralized systems, a unique panel discussion will address the issues,

- What are the challenges and issues facing the onsite industry in re-using, recycling and reclaiming wastewater with decentralized systems, and
- What are the actions needed to go forward into the future.

Moderated by John Mori, Director for the Small Flows Clearing House, invited panelists include:

- Valerie Nelson, Center for Decentralized Wastewater
- Dr. Robert Rubin. University of North Carolina
- James Kriessel, formerly with U.S. EPA
- Dr. Robert Siegrist, Colorado School of Mines
- Douglas Ebelherr, NEHA President
- Dr. Richard Otis, National Decentralized Wastewater Capacity Development Project

SPECIAL WORKSHOP - Advanced Treatment Systems using Mechanical Units – Dr. Bruce Lesikar – 10 a.m. – Sage Room

This special session will preview a new program developed by the American Decentralized Wastewater Association. Advanced treatment systems addresses the use of biological processes to improve effluent quality using suspended and/or attached growth treatment process. Also being presented is the subject of how the evaluation of the wastewater source assists in proper management of the biological growth within the treatment system

WASTEWATER TREATMENT SYSTEM OPERATION AND MAINTENANCE

The Consortium of Institutes for Decentralized Wastewater Treatment is offering a new course to professionals who service onsite wastewater treatment systems. Developed by a core team of industry members as writers and reviewers from around the country, this project is funded by the Water Environment Research Foundation through a grant from the U.S. EPA's National Decentralized Water Resources Capacity Development Project. A preview and highlights of this program will occur at the NOWRA Technical Education Conference and Exposition on Monday at 3:30 p.m. (See separate article, pg. 34.)

The ***Operations & Maintenance Service Provider Program*** for the Onsite Wastewater Treatment Industry is a standardized method for evaluating wastewater treatment, distribution and dispersal technologies. The program establishes standards for operation and maintenance activities. Standardization of maintenance practices reduces the time for evaluating system function, streamlines the collection of information, improves communication with clients, and helps service providers compete for jobs. The result is an efficient and effective evaluation of wastewater treatment systems.

POST-CONFERENCE PROGRAM - WEDNESDAY, NOVEMBER 10, 2004

A SPECIAL NOWRA INFORMATION FORUM – PRESENTING THE NOWRA MODEL PERFORMANCE CODE DRAFT REPORT

9:00 A.M. – Pavilion Ballroom

This session is devoted to the presentation of the long awaited draft report, being developed over the past 3 years by NOWRA's Model Code Committee. Chairing the Forum will be Mike Corry and Jean Caudill, with subcommittee chairpersons participating on a panel discussion. Watch the NOWRA website for additional information and the availability of the draft document

NOWRA FIELD TRIP – 8:30 A.M. TO 3 P.M.

(Separate registration fee, includes lunch and transportation – EARLY SIGN-UP ADVISABLE) If sufficient interest and registration materializes, two field trips may be scheduled for Conference Attendees.

Onsite Systems designed for Recycling and Reuse and Systems being installed. Plans are underway for a site tour that illustrates recycling and reuse of wastewater in difficult and rocky condition. It also includes a site demonstrating how ultra violet treatment is used for a commercial facility. If sufficient interest exists, a second site tour is available to visit a cluster development being installed. Additional information on these plans will be updated in September and placed on NOWRA's website.

ONSITE SYSTEMS AND TECHNOLOGY A to Z

A COURSE FOR ALL ONSITE PRACTIONERS, PUBLIC OFFICIALS, STUDENTS, BUILDERS AND REALTORS

The original **A-Z Course** was developed for the 2000 NOWRA annual conference. It is a basic course to understanding how onsite systems have evolved over the past 25 years—and the baseline information needed to work in this industry. Because of the overwhelmingly positive response to this course, it has been offered as a separate track at every annual conference. In 2004, this course has been updated and changed in order to provide the latest baseline information in technology and practices. Leaders from the best academic institutions and technical experts from the U.S. and Canada share their knowledge and skills with attendees. There is no other comparable course like this one in the U.S.

The **A-Z Course** provides fundamental education for a broad audience. It is structured to meet the needs of several audiences: for people new to the onsite industry needing to quickly understand the many aspects involved in onsite; for individuals responsible for making regulations affecting onsite systems; for professionals who have been working in the business and want to increase their understanding of all aspects of the systems; for instructors from training centers who want to improve their own training courses. The two-day course presents valuable information about the essential areas to be addressed in onsite systems, with CEU's given to onsite industry professionals.

History of Wastewater Treatment and Onsite Systems – shows how humans have struggled with their wastes over the centuries. The development of indoor plumbing and the subsequent need for a way to treat the outgoing wastes are covered, with particular emphasis on the evolution of onsite systems.

Chemistry of Water and Wastewater – describes the nature of the water molecule and its ability to dissolve, suspend and move other things and how these properties are critical to our understanding of wastewater treatment. This session covers the basic features of this anomalous molecule before diving deeper into the topic.

Microbiology of Wastewater Treatment – shows how turning wastewater into clean water involves the participation of many types of microorganisms. The session introduces the different types of microorganisms that live in the septic tank and in the soil, aerobic treatment unit, sand filter or other treatment system that purify the wastewater before returning it to the water environment.

Soils and Site Selection – describes the genesis of soils, how they can be differentiated and how different ones will work with onsite systems. It shows how most onsite systems send the effluent from the septic tank into the local soils for treatment, and how important it is to understand the structure and function of soils.

Septic Tanks and Pretreatment Methods – identifies the way that raw wastewater is treated physically through the septic tank, grease filter or other pretreatment device. It shows how physical methods can work to provide the best quality effluent for eventual treatment in the aerobic system that follows.

Advanced Methods of Onsite Wastewater Treatment – features the principles of advanced pretreatment, together with topics including ATU, media filters and sand filter, peat filters and textile filters. Effluent quality parameters are also presented.

Soil-based Treatment Systems – fully describes the most common type of onsite system. This session review the various types of systems and the mechanisms for treatment efficiency. The best way to make the system last indefinitely will be described.

Hydraulics and Effluent Distribution – explains how gravity-based and pump-based hydraulics work to get the effluent moved to different places for treatment. Methods for distributing effluent into soil or another medium will be outlined and the underlying hydraulic theories are also given.

Installation of an Onsite System – provides important information to avoid having failures stem from faulty installation. From the pipes to the tanks to the fields, every step in the installation procedure is critical for the long-term success and life of the system. As presented in this session, the basics of installation and examples of how the process can have checks and balances to optimize the process demonstrate how to follow the right path to success.

Operations and Maintenance – is a topic that is becoming more important across the US, as regulators address issues affecting non-point sources of pollution. It is important to keep each onsite system operating so that they functions well for the owner. This topic is a critical factor in the success of onsite systems, and protecting an owner's investment.

Land Use and Zoning – encourages effective planning to incorporate onsite into land-use plans and to stop using septic regulations as the de facto land-use tool. With the advent of advanced treatment system and performance-based codes, the importance of planning and zoning as a land-use method has become more obvious. Examples of good and bad land-use planning will be given and success stories will be told. Learn how to plan land use and provide onsite wastewater treatment.

Ron Behrmann

Albuquerque

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NOWRA's 13th Annual Technical Education Conference takes place this year within the beautiful surroundings of Albuquerque, New Mexico. Albuquerque is the gateway to northern New Mexico, the portal through which most domestic and international visitors pass before traveling on to Santa Fe and Taos.

Our conference will be held at the Hyatt Regency Hotel, which is centrally located in the cities premier location, otherwise known as The District. From the rocky crest of Sandia Peak at sunset, one can see the lights of this city of almost half a million people spread out across 16 miles of high desert grassland. As the sun drops beyond the western horizon, it reflects off the Rio Grande, flowing through Albuquerque more than a mile below. Only 5 minutes from the hotel you will be able to enjoy shopping in Old Town, a unique southwestern village with a beautiful and intact plaza. During the day, downtown Albuquerque may be all suits & heels, but at night it boasts a hip nightlife scene. There are several live music and dance clubs, most all are within walking distance of each other – and located in the newly renovated Main Street. A "must stop" is Skip Mizels – southwestern store – for some of the greatest buys in jewelry and gifts to be found in the region.

Southwestern Culture

Numerous attractions throughout the area include the National Atomic Museum, the Hispanic Cultural Center, the Indian Pueblo Cultural Center, the New Mexico Museum of Natural History, Albuquerque Aquarium & Botanic Garden and Rio Grande Zoo. Also, don't forget a drive on historic Route 66 or a visit to the top of the Sandia Mountains or the Sandia Peak Tramway (there is also a world renown Gourmet Restaurant to view sunsets that are unbelievable)! Route 66 is well worth the drive if only to see the rust that time has left - and, you must watch out for the "roadrunners" that race through the fields. Old court motels still line the street with many of their funky 50's signage.

Touring in Albuquerque

Also available are group-chartered tours. Because of the numerous activities, this information will be provided at the NOWRA booth for attendees to make their own plans and reservations. To arrange a tour on your own, please contact Destination Southwest Tours at (505) 766-9068.

Half day tours include: Hot Air Ballooning; a day's ride to see historic and cultural Santa Fe; Sandia Peak; Tramway/Wine Tasting; Turquoise Museum & Old Town, El Pinto Cooking School, Master Cooking Class with Celebrity Chef, Four Wheel Tour, Hiking at Tent Rocks, Golf, Mountain Bikes, Llama Hiking Excursion, Fly-Fishing, Rio-Grande Float Trip and Horseback Riding and Skeet Shooting.

Full day tours include: Santa Fe, Santa Fe Gallery & Progressive Lunch, Santa Fe via The Turquoise Trail, Acoma Sky City Pueblo, Bandelier National Monument/Los Alamos, The Jemez Mountain Trial & Banderlier National Monument, The High Road to Taos, Chaco Canyon National Historic Park, Meet Albuquerque, Shopping Along Route 66, Mountain Biking, Whitewater Rafting and Guided Fly-Fishing Expeditions.

Hotel Location, Directions & Transportation

The Hyatt Regency is located on 330 Tijeras, Albuquerque. From the Albuquerque International Airport, take Yale Avenue. Exit to Gibson Boulevard. Turn left onto Gibson. Proceed to I-25. Travel north to Dr. Martin Luther King Avenue exit. Proceed west on King to 6th Street to Tijeras. The hotel is on Tijeras on the right. An airport shuttle service is available for $20.00.

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Airlines

Most major airlines offer discounts for groups of 10 or more. More information can be obtained by calling the airline directly. Airlines serving Albuquerque include Delta, Southwest, American, America West, Continental/Northwest and Frontier.

CONFERENCE SCHEDULE

SATURDAY, NOVEMBER 6, 2003

8:00 a.m. **NOWRA Board of Directors Meeting**
Albuquerque Hyatt Board Room

Agenda: Financial and Business Reports, 2004 Conference Update, Committee Reports, 2005 Membership Strategies, 2005 Election Results – Preparations for the December Planning Session

This meeting is open to members and committees to participate with Board members in the ongoing work of the Association

12:00 Noon **GOLF TOURNAMENT**
Particioants meet iat the Isleta Eagle Golf Course –
Francis Hammersmith, NOWRA Program Manager
Lunch is included and group will return to the hotel by 5:00 p.m.

3:00-6:00 p.m. **Conference Registration**
2nd Floor – NE Conference Center Lobby
Exhibitor and Pre-conference Program Materials Pick-up
On site registration for the pre-conference programs

SUNDAY NOVEMBER 7, 2003

7:00 a.m.–5:00 p.m. **Conference Registration**
2nd Floor – NE Atrium Area
Materials pick up and registration for pre-conference and full conference sessions.

7:00–9:00 a.m. **Continental Breakfast**
2nd Floor – Atrium Area

8:00 a.m.– 5:00 p.m. **PRE-CONFERENCE PROGRAMS**

Introduction to NOWRA Installer Education & Training Course
Sendero Ballroom – 1st Floor, Albuquerque Hyatt Hotel

Recycle/Reuse Reclamation of Wastewater for Decentralized Wastewater Systems
Fiesta Room – 2nd Floor – Atrium Area, Albuquerque Hyatt Hotel

9 a.m. to 4:00 p.m. **Exhibitor-Set-Up**
Exposition Halls Pavilion and Enchantment Ballrooms
Special arrangements are made for exhibitors to have access for early set-up of their booths.

5:00 p.m. **NOWRA WELCOME RECEPTION**
EXPOSITION HALLS – Pavilion & Enchamtment Ballrooms
Hyatt Regency Conference Center
Grab your "partner" or a "friend" and join us for the opening of the conference exposition. Plans for a fun-filled evening and "a taste of the old southwest" are in place. We look forward to meeting old and new friends and most of all to view the fabulous exhibits of our industry's experts.

MONDAY, NOVEMBER 8, 2004

8:00 a.m. **OPENING GENERAL SESSION**
Sendero Ballroom
NOWRA's 13th Annual Conference officially opens with a Monday Morning General Session hosted by NOWRA's leadership, and setting the tone for the technical education sessions occurring over the next two days.

8:00 a.m. **NOWRA Spouse & Guest Hospitality Room**
Parlor Suite, 2nd Floor, Atrium area, near the NOWRA Registration Center and will open.
Information on area activities will be provided by the Albuquerque Visitors Center and the New Mexico state hosts.

EXPOSITION HALL OPEN HOUSE
The Exhibit Halls are open – **all day on Monday, November 8** for builders, contractors & realtors to attend free of charge and visit with NOWRA equipment manufacturers and suppliers. Exhibitors are also encouraged to invite their clients. NOWRA is working with the New Mexico Builders and Contractors Associations and in surrounding states with advance publicity of this event inviting them to visit NOWRA's exhibitors and learn more about your products and services. Please invite any potential customers and pass the word on to others you would like to attend! Registration and name tag are required.

5:00–7:00 p.m. **State Leaders Meeting**
Fiesta Room – 2nd Floor Atrium

Technical Practices Committee Meeting
Hyatt Board Room

TUESDAY, NOVEMBER 9, 2004

7:00 a.m.-5:00 p.m. **Conference Registration**
2nd Floor NE Atrium Lobby
Materials pick up and registration for all conference sessions.

7:00 –9:00 a.m. **Continental Breakfast**
Exposition Halls

Education Committee Meeting
Fiesta Room – 2nd Floor Atrium

7:00–7:45 a.m. **PRAYER BREAKFAST** – Dr. Ted Loudon
Hospitality Parlor Suite, 2nd Floor Atrium
The annual NOWRA prayer breakfast has become a tradition and a highlight for many at the meeting each year. This is a time when we meet to share what God is doing in our lives and to pray for the concerns of NOWRA. All are welcome and encouraged to attend. Participants pick up breakfast items and go to room.

CONFERENCE SCHEDULE

TUESDAY, NOVEMBER 9, 2004

9:00 a.m. **TECHNICAL EDUCATION SESSIONS BEGIN**

(See full details in Conference Program Schedule)

Noon to 2:00 p.m. **NOWRA MEMBER RECOGNITION & AWARDS LUNCHEON**

Sendero Ballroom

(Included in the full conference registration fee) NOWRA's annual Awards Lunch is an important highlight to recognize and honor the dedicated volunteers and NOWRA Industry members who have donated their time and support to building the Association. Invited Guest Speaker: Honorable William Richardson, Governor, New Mexico

WEDNESDAY, NOVEMBER 10, 2004
POST CONFERENCE PROGRAM

7:00 –9:00 a.m. **Continental Breakfast** – Atrium Area

8:00 –9:00 a.m. **NOWRA ANNUAL MEMBERSHIP MEETING**

Pavilion Ballroom

This annual meeting, as required by NOWRA By-laws, enables attending members to ask questions of our leaders, about the operation and future plans for the Association. A report on 2004 committee and program activities, financial update will be distributed, the newly-elected 2005 Officers and Board of Director members will be introduced.

9:00 a.m. **A SPECIAL NOWRA INFORMATION FORUM – *PRESENTING THE NOWRA MODEL PERFORMANCE CODE DRAFT REPORT***

This session is devoted to the presentation of the long awaited draft report, being developed over the past 3 years by NOWRA's Code Committee. Chairing the Forum will be Mike Corry and Jean Caudill, with subcommittee chairpersons participating on a panel discussion. Watch the NOWRA website for additional information and the availability of the draft document.

9:00 a.m. **National Consortium Institutes Committee Meeting –**

Fiesta Room

Contact Dr. Bruce Lesikar for registration details and proposed meeting agenda.

8:30 a.m. **NOWRA FIELD TRIP DEPARTURES**

If sufficient interest and registration materializes, Two Field Trips may be scheduled for Conference Attendees (separate fee and pre-registration required - box lunch & transportation provided)

Installing Onsite Systems for Recycling and Reuse – and a unique cluster development

Plans are underway for a site tour that illustrates recycling and reuse of wastewater in a difficult and rocky conditions; another site shows how ultra violet treatment is used for a commercial; and a third option exists to visit cluster developed that is being installed. More information will be updated on NOWRA's website in September.

PRELIMINARY CONFERENCE SCHEDULE

	Saturday-Nov 6	Sunday-Nov 7	Monday-Nov 8	Tuesday-Nov 9	Wednesday-Nov 10
7:00 a.m.		Pre-Conference and Exhibitor Registration Materials	Conference Registration	Conference Registration Legislative/Government & Education Committees Prayer Breakfast Parlor Suite	
8:00 a.m.	NOWRA Board of Directors Meeting	**Pre-Conference Workshops Sendero & Fiesta Rooms**	**Opening General Session Sendero Ballroom 8:00 - 10:00 a.m.**		NOWRA Annual Membership & Board Meeting
9:00 a.m.		**Exhibitor Set-up Pavilion and Enchantment Ballrooms**	**Exhibit Hall Open All Day for Public—Contractors, Realtors, Builders 8:00 a.m. to 6:00 p.m.**	Technical Sessions 9:00-12:00 Sendero/Fiesta/Sage	**Post-Conference Session Presentation of the Draft** NOWRA Model Performance Code
10:00 a.m.			Technical Sessions 10:00 a.m. to noon Sendero/Fiesta/Sage		Technical Field Trips Consortium Meeting 9:00 a.m.
12:00 p.m.	NOWRA Golf Tournament Isleta Eagle Golf Course	Conference Registraton Opens	**All Break Refreshments in Exposition Halls Lunch on your own**	**AWARDS LUNCH Sendero Ballroom**	
2:00 p.m.			Technical Sessions See Conf. Program	Technical Sessions See Conf. Program	
5:00 p.m.		**Exhibit Hall Reception and Opening**	**Exhibit Hall Festivities Committee Meetings** State Leaders/Fiesta Room Technical Practices/Hyatt Board Room	**Exhibit Hall Tear Down** Open Time for Committee Meetings	

NOWRA ANNUAL GOLF TOURNAMENT

(WE PLAY RAIN OR SHINE – NO MAKE-UP RAIN DATE}

WHO	2004 Conference attendees, guests, and even friends
WHAT	A great day on a fabulous golf course, contests, prizes, beverages, lunch, range balls, door prizes, hats
WHERE	Albuquerque Isleta Eagle Golf Course
WHEN	Saturday, November 6, 2004 – Meet at Golf Course at Noon – Tee-off at 1:00 p.m.
WHY	To relax, have fun & support NOWRA
FORMAT	Modified Scramble – Best Ball
WHAT ELSE	Awards for lowest 3 net scores and lowest scoring group
HOW MUCH	$100 per golfer - $400 per foursome - $500 per foursome + hole sponsor (includes hole sign); $100.00 per individual hole sponsor

Unique Sponsor Opportunities

$1000	Hole-in-One Sponsor – receives 2 free foursomes + 2 hole sponsor signs
$600	Double Eagle Sponsor – receives 1 free foursome + 1 hole sponsor sign
$500	Eagle Sponsor – receives 3 free golfers + 1 hole sponsor sign
$300	Birdie Sponsor – receives 2 free golfers + 1 hole sponsor sign

REGISTRATION

Name

Company

Address

Phone Fax e-mail # golfers

Team members:

Single fee (per/person)_____Team fee_____

Sponsor Information

- ☐ Yes, I'd like a hole sign @ $100 per/company
- ☐ Yes, Contact me about providing items for goody bags
- ☐ Yes, contact me about providing a door prize
- ☐ Yes, contact me about other sponsorship opportunities (beverage cart or photographs)

CONFERENCE RESERVATION INSTRUCTIONS

The full regular registration fee includes access to all education sessions, break refreshments, the Technical Exposition, Exhibitors' Welcome Reception (Sunday evening), NOWRA's Member Recognition & Awards Luncheon with invited guest speaker, Honorable William Richardson, Governor, New Mexico (Tuesday afternoon), Wednesday's Special Industry Workshop—Presentation of the NOWRA Preliminary Model Performance Code—and Conference Proceedings.

The daily registration fee covers the one-day access to education sessions and seminars, the Exposition, refreshment breaks, and Conference Proceedings.

Guest fee includes access to the technical exposition, Awards Lunch, Exhibitors' Welcome Reception, Hospitality Area, and refreshment breaks.

DATES AND DEADLINES

Registrations at the rates identified at right must be RECEIVED by the dates listed.
Regular Registration:
September 1 through October 22, 2004
Late/onsite Registration begins October 23 and will be accepted *ONLY* at the Conference.

REGISTRATION PROCEDURES

- Materials will be provided at the conference registration desk.
- No phone-in registrations can be accepted, although changes in previously made registrations may be handled fax or by phone with a follow-up fax.
- Registration forms may be mailed with a check (payable to NOWRA) or credit card payment information, or faxed with credit card information. All pre-registration forms must be received by October 22, 2004, and be accompanied by payment in full in order to be processed.

CANCELLATION POLICY

Registrations must be in writing, and are refundable until October 22, 2004, but will be charged a processing fee of $50.00. No cancellations are accepted after October 22, 2004 and no refunds will be given after that date.

CONFERENCE RESERVATION FORM

Last Name (please print) | First Name | Name for Badge (if different from first name)

Company/Organization

Street Address

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

Daytime Phone | Fax Number | E-mail

Membership Number | Section Number

CONFERENCE REGISTRATION FEES: Regular Registration is from Sept. 1 through Oct. 22, 2004.
On site Conference Registration rates begin October 23, 2004 (at Conference)

CONFERENCE FEES *Late registration is AT CONFERENCE ONLY*	**Regular 9/1 – 10/22/04**		**Late 10/23/04**		**Total**
	Member/Partner*	Non-Member	Member/Partner*	Non-Member	
Full Conference NOWRA Members and Partnering Organizations*	$425	$525	$475	$575	_____
Daily Conference Rate NOWRA Members and Partnering Organizations* Please check the day you are attending. ☐ Monday ☐ Tuesday ☐ Wednesday	$275	$350	$300	$400	_____
Special Student Fee (includes NOWRA membership)	$125	$125	$125	$125	
Pre-Conference Workshops Sunday, Nov. 7, 2004 Please check the workshop you are attending. Pre-registration is required in order to receive the workshop handouts. ☐ Installer Qualifer Education/Training ☐ Recycling/Reuse & Reclaiming Systems	$175	$225	$225	$325	_____
Other Fees Guest (includes Opening Reception, Awards Luncheon, Hospitality Room and gift)	$75	$75	$75	$75	_____
Sunday, Nov. 7, 2004 – Opening Reception	$30	$30	$40	$40	_____
Tuesday, Nov. 9, 2004 – Prayer Breakfast	$15	$15	$15	$15	_____
Tuesday, Nov. 9, 2004 – Awards Luncheon	$40	$40	$55	$55	_____
Wednesday, Nov. 10, 2004 – Onsite Systems Field Trip (includes box lunch)	$75	$75	$75	$75	_____
Saturday, Nov.6, 2004 – **Golf Tournament**	Individual – $100 Foursome – $400 Foursome/Hole Sponsor – $500 (Please fill out complete golf registration form)				_____
TOTAL AMOUNT ENCLOSED					

*NOWRA Partnering Associations include: The National Association of Wastewater Transporters, the National Environmental Health Association, the National Ground Water Association, and the NDWRCD Project.

Mail completed form with check (payable to NOWRA) or fax your registration with credit card information. Registrations are only accepted with full payment in U.S. dollars. After October 22, 2004, registrations are only accepted at the Conference. $50 processing fee for returned payments.

NOWRA Conference Registration
P. O. Box 1270 • Edgewater, MD 21037-7270
or fax credit-card-paid forms to (410) 798-5741
Please duplicate this form for additional registrations.

SEE WEBSITE FOR ONLINE REGISTRATION INFORMATION
• • • INQUIRIES: 800-966-2942 • • •

Pmt. Recd _____ Entered_____
Confirmed _____

PAYMENT INFORMATION

Fed. ID Number: 593099430

☐ Check ☐ Visa ☐ MasterCard ($50 processing fee for returned payments)

Credit Card No._____ Exp. Date_____

Print Name on Card _____ ☐ Corporate ☐ Personal

Billing Address for card:
Name/Company_____

Street_____

City_____ State_____ Zip_____

Security Number (3 digits) on back of card:_____

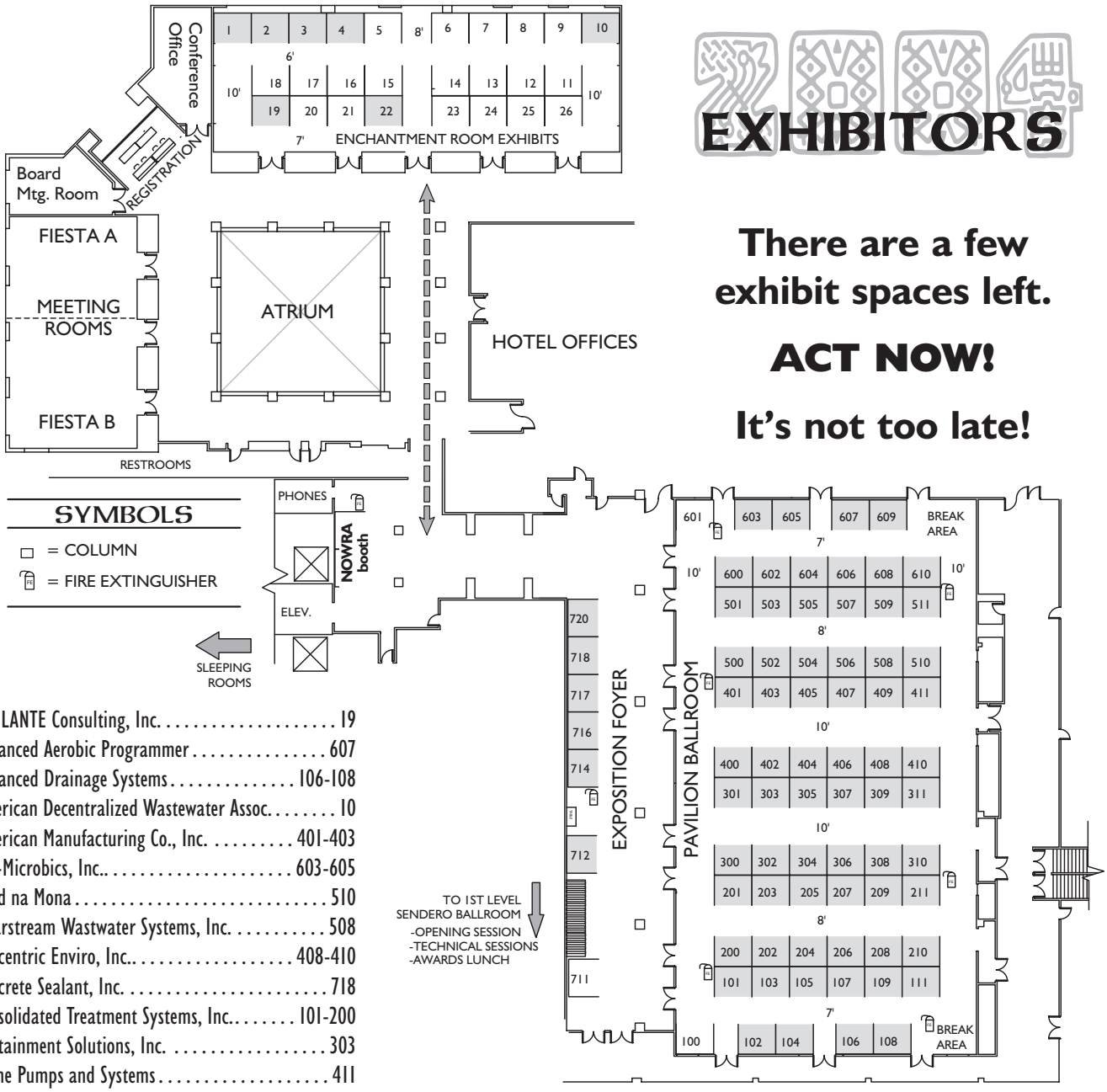
Authorizing Signature for credit card:_____

EXHIBITORS

There are a few exhibit spaces left.

ACT NOW!

It's not too late!



ADELANTE Consulting, Inc. 19
Advanced Aerobic Programmer 607
Advanced Drainage Systems 106-108
American Decentralized Wastewater Assoc. 10
American Manufacturing Co., Inc. 401-403
Bio-Microbics, Inc. 603-605
Bord na Mona 510
Clearstream Wastwater Systems, Inc. 508
Concentric Enviro, Inc. 408-410
Concrete Sealant, Inc. 718
Consolidated Treatment Systems, Inc. 101-200
Containment Solutions, Inc. 303
Crane Pumps and Systems 411
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Ecological Laboratories, Inc. 105
Ecological Tanks, Inc. 400-402
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Gast Manufacturing, Inc. 301
Geoflow, Inc. 501-600
Goulds Pumps/ITT Industries 602
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Hydromatic Pump Co. 310
Infiltrator Systems, Inc. 503
MicroSepTec, Inc. 511
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National Environmental Services Center, formerly National Small Flows Clearinghouse 308
National Precast Concrete Association 712
Natural Systems International, LLC 307
NCS Wastewater Solutions. 506
Netafim USA. 309-311
North American Wetland Engineering 407
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Rain Bird Agri-Products, Inc. 103
Reactor Dynamics, Inc. 405
Rietschle Thomas Sheboygan, Inc. 720
Rochester Rotational Molding, Inc. 111-210
Royal Community Assistance, Inc. 2
SJE-Rhombus, Inc. 604
SNS-Juggler Group Inc. 608
Sta-Rite Industries/Wicor Industries 206-208
Stone Environmental. 209
Tuf-Tite, Inc. 203-205
Water Environment Reseach Foundation 3
Waterloo Biofilter Systems, Inc. 606
Wieser Concrete. 717
Xerxes Corporation 505
Zabel Environmental Technology 406
Zenon Environmental, Inc. 409
Zoeller Pump Co. 201-300

CONFERENCE LODGING

Conference lodging will be at the Hyatt Regency Albuquerque Hotel, with a block of rooms reserved at a special rate of $89.00 for attendees. Other lodging facilities are also available in the area, but do not have a reserved block at a special rate. All Lodging reservations are to be made directly with the Hotels.

GUEST ROOM RESERVATIONS FORM

National Onsite Wastewater Recycling Association
November 7-10, 2004
13th Annual Technical Education Conference & Exposition

Last Name (please print) First Name Company/Organization

Street Address City State/Province Zip/Postal Code Country

Daytime Phone Fax

Sharing Room With

Arrival Date_____ Arrival Time_____ Departure Date_____ ☐ Smoking ☐ Non-smoking

Special rate for all attendees – Single/Double rooms are $89.00 + tax Check preferred type ☐ Single ☐ Double

☐ Triple ☐ Quadruple

☐ American Express ☐ Visa ☐ MasterCard ☐ Discover Card

Credit Card Number_____ Exp. Date_____

Name on Card_____ _____

Signature (required)_____

Please Note: All rates are subject to local taxes.
Check-in time is 3:00 p.m. Check-out time is 11:00 a.m.
Reservations by attendees must be received on or before Monday, October 25, 2004. At the cut-off date, Hotel will review the reservation pick up for the event, release the unreserved rooms for general sale, and determine whether or not it can accept reservations based on a space- and rate-available basis at the group rate after this date.

Mail or Fax Form to: Hyatt Regency Albuquerque
330 Tijeras NW
Albuquerque, NM 87102

Phone: 505-842-1234 (hotel direct) or toll-free 800-233-1234

Fax: 505-843-2675

TRAINING PROGRAMS TO IMPROVE AND STANDARDIZE WASTEWATER TREATMENT SYSTEM OPERATION AND MAINTENANCE

The Consortium of Institutes for Decentralized Wastewater Treatment is offering a new course to professionals who service onsite wastewater treatment systems. Developed by core team of industry members as writers and reviewers from around the country, this project is funded by the Water Environment Research Foundation through a grant from the U.S. EPA's National Decentralized Water Resources Capacity Development Project.

The Operations &Maintenance Service Provider Program for the Onsite Wastewater Treatment Industry presents a standardized method for evaluating wastewater treatment, distribution and dispersal technologies. The program establishes standards for operation and maintenance activities. Standardization of maintenance practices reduces the time for evaluating system function, streamlines the collection of information, improves communication with clients, and helps service providers compete for jobs. The result is an efficient and effective evaluation of wastewater treatment systems.

Lectures are organized according to the treatment trains for various onsite wastewater treatment system configurations. Individual components are discussed and key items that should be inspected are identified. Detailed instructions are given for evaluating and reporting the status of each component on operational checklists. Standardized operation and maintenance checklists are key to the training program.

Two-day courses are scheduled for the following locations.
September 16-17, 2004, Tacoma, Washington.
May 11-12, 2005, ingston, Rhode Island
June 13-14, 2005, Brainerd, Minnesota.
The course package includes instruction, a manual describing operation and maintenance procedures for the various technologies, and standardized operational checklists.

Operation and maintenance providers, regulators who provide wastewater management oversight and system designers will benefit from the training program. For registration information, visit http://www.onsiteconsortium.org and click on the Practitioner Training tab.

The Consortium of Institutes for Decentralized Wastewater Treatment is a group of universities, institutions and training entities organized to develop training materials and class curricula, and to conduct research benefiting the onsite wastewater treatment industry.

Contact: Bruce Lesikar
b-lesikar@tamu.edu
979.845.7453

Course locations, dates and contacts for:
The O&M Service Provider Program for the Onsite Wastewater Treatment Industry

Tucson Arizona: August 24-25, 2004
Kitt Farrell-Poe, University of Arizona
928.782.3836 kittfp@ag.arizona.edu

Tacoma, Washington: September 16-17, 2004
John Thomas, Washington Onsite Sewage Association
253. 297.2837 johnthomas49@msn.com

Kingston, Rhode Island: May 11-12, 2005
George Loomis, University of Rhode Island
401.874.4558 gloomis@uri.rdu

Brainerd, Minnesota: June 13-14, 2005
Greg Miller, University of Minnesota
800.322.8642 mille599@umn.edu

Contact above for arrangements and associated fees.

What Equipment Do You Need Right NOW! NOWRA Members Can Preserve Cash and Get Better Equipment with Financing Solutions from Mar Vista Financial!!! Call Us!! We Can Help!!

Highlights

- **Low Credit Score OK**
- **Poor Cash Flow OK**
- **Lease Programs from A-D Credit**
- **Refinance / Cash Out Programs Available**
- **Great Financing Rates Available**
- **Deferred Payment Plans**
- **Free Equipment Locating Srvc.**
- **Competitive payments, Always!**

Equipment Financed: **NEW OR USED EQUIPMENT!** A wide variety of capital equipment from Back Hoes, Chain Trenchers, Ram Hoes, Rock Saws, Service Vehicles, Trucks, Track Hoes, Excavators, etc.

Transaction Range: **$5,000 to $100,000**

Product Characteristics: **2 to 8 year term** depending on the type of equipment

Fixed rate level payment.

Reduced/Seasonal payment programs available

Refinance & Cash Out Available

New and Used Equipment

YES!! I would like to take advantage of Mar Vista's great Equipment Financing Options.

Fax this page to Chad @ 714-628-1162

Company Name:_____Telephone:_____

Company Contact:_____Fax:_____

Email Address:_____Best Time to Call:_____

What type of equipment are you needing to finance?_____ _____

How much does the equipment cost?_____ Is the equipment new or used?_____

Do you need seasonal or deferred payment options?_____

Do you need to refinance or take cash out of any existing equipment?_____

If yes, what type of equipment and how much?_____

Any other details we should know about?_____

We will be calling you shortly to discuss your current situation and to determine what types of financing options will be best suited for you. You may also call Chad Castle at 877-499-6843.

NOWRA 2005-2007 Board of Directors Cand

Applicant	Board Category	Employment and position	Work/affiliation, expertise, credentials
Sara H. Christopherson	Academic	Extension Educator - University of Minnesota	University of Minnesota PhD in progress in Water Resource Science Emphasis: Modeling Wastewater Characteristics from Single Sources
Robert "Bob" Himschoot	Service Provider	Crews Environmental System Installations & Cleaning - Florida Owner	B.S. Forest Management and 20 yrs experience in the onsite industry FOWA Board of Directors NOWRA Gov Relations
Tim Mayer	Regulator	Registered Sanitarian Polk County Health Dept, Florida	M.S. in Public health - 22 years in the onsite industry
Brian McQuestion	Manufacturer - Supplier	Controller and sales manager; Lake Shore Burial Vault Co, Brookfield, WI	B.A. Accounting - 15 years in the onsite industry; President of the Wisconsin Onsite Association
Richard Otis	Designer - Engineer	Vice President Applied Technologies Owens Ayres & Associates	BS in Geophysics, MS & PHD in Civil and Environmental Engineering; past NOWRA Board member, Technical Practices Committee; and Model Performance Code Committee
Sam Robertson	Manufacturer	Environmental Specialist and Regulatory Affairs Manager Ring Industrial Group	B.S. Biological Science and an MBA. Has also worked as an environmental public health official and regulator in the industry for over 31 years.
Carl W. Thompson	Manufacturer	Vice President of Marketing and Government Affairs; Infiltrator Systems, Inc.	M.S. in Civil Engineering and MBA; working in the onsite industry for over 15 years; member of the NOWRA Model Performance Code Committee
Leanne Whitehead	Designer-Engineer	Industrial Marketing Manager Tennessee Valley Authority	B.S., Mechanical Engineering Worked in onsite industry for over 15 years. 2003 NOWRA Conference Co-chair; TOWA Secretary

idate Profiles

NOWRA members will receive ballots to vote on five persons from this list of candidates to fill vacant Board positions. Information is also on NOWRA's website

Specific area of interest on industry issues	Willingness to serve on Board	Perspectives on future directions	Critical issues NOWRA should address
Contributing to NOWRA's educational programs and implementing the model performance code	My work will provide mutual benefits to NOWRA, Minnesota's education program and state NOWRA chapter. I bring these skills and knowledge which will help make NOWRA a stronger organization.	There is a definite need to have a national clearinghouse for education to help fill the gaps in state programs.	NOWRA needs to be the voice in Washington for the Onsite Industry. Most states programs do not have the capability or resources to deal with national issues. NOWRA needs to help its constituents in developing models/codes to deal with new technology. The industry is expanding so quickly and many professional and states need help in determining appropriate use that is protective of public health and the environment.
Promoting managed decentralized onsite wastewater systems vs central sewers	With the support of a strong management team and organization, the ability to devote time to NOWRA's work is ensured.	NOWRA should position itself as the universal voice and represent all onsite wastewater manufacturers, engineers, installers, and service companies before the USEPA and state governments as needed.	NOWRA has the potential to organize state associations and help educate federal agencies, planners, engineers, developers, homebuilders as well as installers and pumpers to the advantages of managed decentralized onsite wastewater systems. To continue NOWRA's work will take dedication, perseverance and financial resources from its membership.
Promoting onsite systems as a viable and beneficial method of sewage treatment and disposal	Improving the technology and image of onsite systems must be accomplished on a national scale.	NOWRA members rely on the association to keep the onsite industry on the cutting edge through encouragement of improved treatment technologies and its image.	NOWRA has the unique opportunity to be the national leader in demonstrating industry capabilities and respectability
Developing state associations and improving their effectiveness	NOWRA is the best way to organize the states effectiveness; Wisconsin's experiences could be of value to other States efforts	Assisting the membership in resolving regulatory problems on the state and local level.	It is critical that NOWRA organize state associations as the federal government is expanding its control over the onsite industry; to do that the states need to adopt performance codes.
Integrating onsite decentralized wastewater and municipal technologies in development of watershed-wide comprehensive plans under third party management to sustain water quality and improve our quality of living.	Essential to this position is understanding the essential leadership role of Board members in promoting the industry, participating in policy-making, raising the standards of practice and improving the marketplace.	NOWRA needs to take a leadership role in the future direction of the onsite decentralized industry - increasing the awareness and knowledge of systems with the public and policy officials.	It is important that NOWRA continue to strengthen its reputation as an organization that fairly represents all sectors of the industry at the national and local levels.
Working to promote the model performance code and building strengths of the state groups.	I believe my knowledge and long-term experiences within the industry can assist with the growth and continued development of NOWRA as "the voice" of the onsite industry.	NOWRA should increase its leadership role in the industry by taking advantages of new opportunities with groups and organizations.	It is critical for NOWRA to address on a continual process, efforts to bring in all interested parties to work towards unified industry goals. Many political officials and members of the public are unaware of the full percentage of the nation that is served by onsite systems.
To use my government affairs expertise to educate decision makers and support enabling legislation for decentralized systems.	Completing the work of the model performance code for the onsite industry is the most important task.	NOWRA should create opportunities for its members while at the same time protecting public health and the environment.	NOWRA's future is tied to the successful implementation of the model performance code that also require sound decisions and a stronger dialogue with state (and province) policy officials
Promoting the industry and developing its strengths.	To use my skills to pursue the premise that decentralized wastewater systems are an even greater and viable infrastructure solution than perceived.	To see that NOWRA's board continue to focus on making the most of our respective strengths to pursue new opportunities.	NOWRA needs to focus on issues that make it easier to do business and methods to preserve and protect the environment.

SJE-Rhombus Controls Introduces New SJE MilliAmpMasterTM Low Current Control Switch

SJE-Rhombus® announces the addition of the SJE MilliAmpMaster™ control switch. This mechanically-activated control switch is designed to activate low current control panels and alarms.

The SJE MilliAmpMaster™ low current control switch offers many features at an affordable price!

This wide-angle control switch provides reliable low current control for AC and DC applications in potable water, wastewater, and sewage applications. The internal switching mechanism has sealed gold cross-point contacts for reliable low current operation. The SJE MilliAmpMaster™ control switch is available as both a normally open model (high level) and a normally closed model (low level). This control switch has passed NSF Standard 61 protocol by an approved Water Quality Association laboratory and is UL Listed CSA Certified.

Common applications for the SJE MilliAmpMaster™ control switch include low current control panels and alarms such as the Installer Friendly Series™ and Data Minder® control panels. PLC (programmable logic controller) panels, IS panels with intrinsically safe barriers, and solar applications represent other common functions for the SJE MilliAmpMaster™.

SJE-Rhombus Controls has been a leading manufacturer of quality liquid level controls for the water and wastewater industry since 1975. For additional information and pricing on SJE-Rhombus products, please visit www.sjerhombus.com <../Documents%20and%20Settings/jeno/Application%20Data/Microsoft/Word/www.sjerhombus.com> , phone 1-888-DIAL-SJE (1-888-342-5753) or 218-847-1317, Fax 218-847-4617, or email sje@sjerhombus.com.

Contact: Jennifer Oemichen, Marketing Specialist
SJE-Rhombus
22650 County Highway #6
Detroit Lakes, MN 56502
Phone: 218-847-1317, ext. 363
Fax: 218-847-4617
Email: JenO@sjerhombus.com

DELTA ENVIRONMENTAL PRODUCTS, INC. ANNOUNCES NEW ADVANCED WASTEWATER TREATMENT PRODUCT LINE

"ECOPOD & BIOPOD SERIES"

Delta Environmental Products Inc. is proud to announce a new line of Onsite Wastewater Treatment Products. The new "ECOPOD & BIOPOD Series" are Fixed Film, Advanced Wastewater Treatment Systems. These products will be marketed under the registered trade name "ECOPOD" & "BIOPOD".

Five years in development, this new line of products will cover a treatment range from 500 to 100,000 gallons per day. The residential system, the "ECOPOD" is NSF Class I certified. The larger commercial system designs above 1,500 gallons per day will be marketed under the trade name "BIOPOD".

The new Fixed Film, Advanced Wastewater Treatment "POD'S" are suitable in many different tank sizes and configurations, and for easy retrofit where allowed. They have been designed to significantly reduce Nutrients, as well as BOD and TSS. The "ECOPOD" and "BIOPOD" can be paired with all commonly used disposal methods, in particular, the Delta Pre-Engineered Drip Disposal Systems.

Delta plans to formally unveil the exciting new line of products at the upcoming NOWRA Conference in Albuquerque, New Mexico in November 2004. [patent's and registered trademarks applied]

JULY 2004 - SPECIAL CONFERENCE MARKETING UPDATE!

The NOWRA Office is continuing with an aggressive marketing campaign for the 13th Annual Conference in Albuquerque, NM. This Conference is targeted to be the most successful event to date. Albuquerque is a great location, and offers more things to do than we have time available. You may want to consider coming in early - and bringing spouses. It's a great opportunity to go Holiday shopping (some merchants are providing special discounts), while some folks are off at the golf tournament. Great Airline Fares via Southwest & Delta as well as our room rate at $89.00 are really great deals!

1. NOWRA Conference Booth spaces are 75% filled (this includes both rooms). Both halls are open all day on Monday, Nov. 8, for builders, contractors & realtors to attend free of charge. Exhibitors are also encouraged to invite their clients. NOWRA is working with the New Mexico Builders and Contractors Associations and in surrounding states with advance publicity of this event. We are inviting them to visit NOWRA's exhibitors and learn more about your products and services. Please invite any potential customers and pass the word on to others you would like to attend!
2. Please provide any promotional information we can use to publicize products and services.
3. A major public relations effort is underway to promote NOWRA businesses and products throughout the US – Hope you have signed up for the "online locator!"
4. Additional "conference announcement" post cards are available if you desire to send them to your clients. Please let us know.
5. **Deadline REMINDERS - Please Note the Items Below!**
   - The Conference Program goes to press on September 30, 2004. All company information for the Exposition profile section must be revised and signed, before being published. NO APPROVED COPY—NO PUBLISHING.
   - Deadline for reserving prime advertising space in the Conference Program is extended to September 15, 2004.
   - All Advertising copy must be submitted to NOWRA by September 24, 2004.
   - Send all advertising copy to NOWRA - P.O. Box 1270, Edgewater, MD 21037 - or via email at lhbonner@hanifin.com.
   - Please provide the name of each person in the conference booth before September 1, 2004. The fee for each additional booth member is $150.00 (only provides a badge for the exhibit area and meals for Sunday thru Tuesday.)
   - After October 1, 2004, only one name change is allowed on the booth personnel badges. After the one allowance, a $25.00 charge will be made for every change initiated.
   - Booth payments must be paid in full by August 31, 2004, or the space will be released.
   - Contact the Hyatt Regency Hotel at 505-842-1234 to reserve your sleeping room before October 15, 2004.

NEW MARKETING AND PROMOTION OPPORTUNITY FOR 2005

NOWRA is producing a 2005 calendar to be distributed free to all conference attendees and later to each NOWRA member and business. This calendar is unique to NOWRA and the onsite industry and is expected to become a hot commodity!

- Each month features a full-page, full-color promotion of a company's product in a visual setting illustrating the successful use of an onsite system, beginning December 2004.
- Each featured company receives 50 complimentary calendars and the opportunity to purchase more for use as client gifts. (Just visualize the impact of your message located on a regulators wall!
- Each month features two key messages.
  ~ A brief "tip" on caring for and managing an onsite system, and
  ~ A "fact" dispelling a commonly held "myth" about onsite systems.
- Dates of all 2005 state group and organization activities and meetings are listed.
- This opportunity is limited to 12 companies - so far, eight months have been sold.

NOWRA has embarked upon a major national marketing and publicity campaign to raise awareness about the products and service of NOWRA member companies and about the national conference. This information is also listed on the website.

Again, we thank you for supporting our collective work within NOWRA and the onsite industry. Together we are truly making a difference! Please do not hesitate to contact our headquarters' office if you should have any questions or concerns.

2005 Business Benefit Program will be available October 2004.