

Spring 2006

ONSITE *journal*

NEWS FOR THE ONSITE WASTEWATER RECYCLING INDUSTRY

**Industry Guidelines
Adopted on
Drip Systems**

Women in NOWRA

**NOWRA
Business Partners**

**2006 NOWRA
Conference and
Exposition in Denver**
Registration information inside



NOWRA
National Onsite
Wastewater Recycling Association

Vol. 15 No. 2

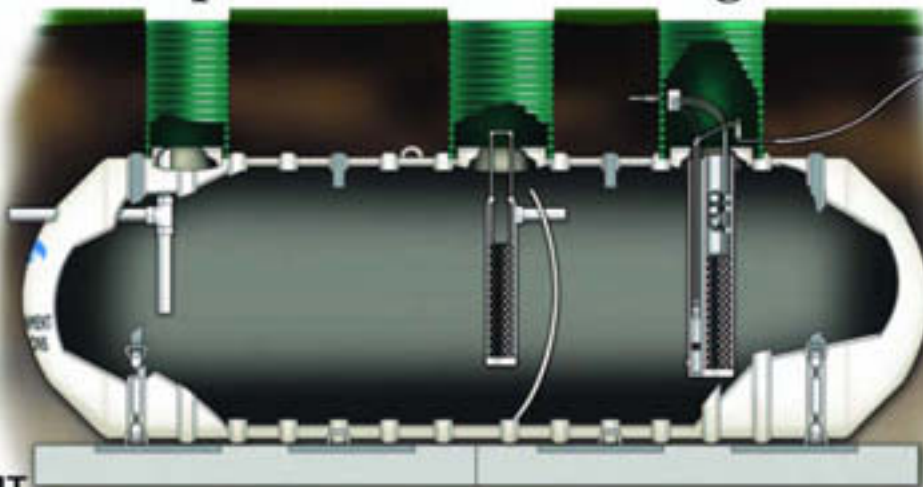
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NEWS FOR THE ONSITE WASTEWATER RECYCLING INDUSTRY

National Onsite Wastewater Recycling Association

Vol. 15, No. 2

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Why Is M.O.M. and M.E. Moving So Slowly in the Onsite-Decentralized Industry?

As a professional in the onsite-decentralized world, we have many opportunities and challenges. How we address these will affect the future of this industry. It is my belief that the opportunities for individuals working in this industry far exceed the challenges. At the same time, until M.O.M. & M.E. get their act together, many challenges will remain.

So, what do M.O.M. & M.E. have to do to with our abilities as individuals in this industry to address these challenges? Well, we first have to understand them—and here's how I define them.

M.O.M. represents the life cycle *Management, Operation and Maintenance* of onsite and decentralized wastewater treatment systems. **M.E. represents** a *Maintenance Entity* that has a contract with a customer to maintain their onsite system.

The challenge is to have all onsite wastewater treatment systems maintained and the opportunities are to create the infrastructure to carry on the work. These are not new phrases or concepts. Management, Operations & Maintenance was presented in the 1970s by Otis, Plews, Winneberger and others. Then in 1978, a model about this work was presented at the University of Washington Short Course. This viewpoint is finally receiving wide spread acceptance and attention, as being a critical part of insuring that onsite systems perform as they are intended. M.O.M means that periodic inspections by trained and certified service providers occur on the systems;

records about systems are entered into a database and are analyzed and maintained. Overall, M.O.M means that a total management program is in place that includes repairing systems in a timely fashion.

M.E. represents a fairly new term—“*Maintenance Entity*” that emerged in the late 1990s. M.E. is defined as the organization or structured group who is responsible for doing this work. The Maintenance Entity must have a well defined business plan with practices and procedures in place, in order to take care of M.O.M.

The premise about these notions was also established as an important principle in NOWRA's 1999 Strategic Model Framework for Unsewered Wastewater Infrastructure. This document is as essential today in 2006 as it was when it was produced. The Framework identifies seven core principles through which this industry is guided.

- Performance Requirements
- System Management
- Compliance Monitoring and Enforcement
- Technical Guidelines
- Education, Training for Practitioners, Planners, and Owners
- Certification, Licensing for all Practitioners
- Program Reviews

How does the “Framework” apply to meeting our challenges and capturing opportunities? Let's revisit them to take stock of where we are, and what we have yet to accomplish. If we value

them for their intended purpose, we also know that it is time, and long overdue, to expand our work to insure that they are meaningful, and to recognize that they are the foundation for M.O.M. and M.E. It also means that we in the onsite-decentralized industry have to broaden both our internal and external communication and involvement in order to get M.O.M. and M.E. moving ahead.

Within Performance Requirements, is the message that *Regulatory Reform* within the states is one of the first tasks to get underway to insure that “M.O.M. & M.E.” have the capabilities to leverage our opportunities? To accomplish this, specific actions need to occur.

- Onsite codes within the states and counties need to be changed to accommodate new technologies. We need to move away from “prescriptive approaches to performance based approaches” and insure that management and maintenance are incorporated in these codes.
- Watershed planning needs to become better understood and actually put into practice. With planning, also comes implementation that includes management and maintenance.
- Integrated Water Resource Management needs to become a new mantra for the onsite industry.
- Utility Commission Laws will need to be revisited in order to begin to make management entities accepted practices. Private Utilities for managing decentralized systems will exist within this framework as protection for consumers.

Jerry Stonebridge, PE., PhD, (NOWRA Vice President/ President Elect) and President of Stonebridge Environmental, Inc., shares his viewpoints and perspective on NOWRA, the industry's work, and the actions needed for its future achievements.

- State and Federal funding for centralized and decentralized systems may not exist by the end of this decade. Therefore, we must embrace and establish sustainable programs for the overall water resource infrastructure that includes maintenance and management as one of its core components.

Broadening the communication both within and about the onsite-decentralized systems is another important action. A first step in making this goal become a reality occurred January 2005 with a unique event. The following major industry organizations reached agreement, and are now participating as partners with the U.S. EPA through a Memorandum of Understanding regarding cooperation in Decentralized Wastewater Management and Information Dissemination.

- National Onsite Wastewater Recycling Assoc. Inc
- National Assoc. of Towns & Townships
- National Assoc. of Wastewater Transporters
- National Environmental Health Assoc.
- National Environmental Services Center
- Rural Community Assistance Partnerships, Inc.
- Water Environmental Federation
- Consortium of Institutes for Decentralized Wastewater Treatment

Participating in this program is one way to insure that M.O.M. & M.E. succeed.

Additional Communication and Involvement efforts need to continue to the next level about M.O.M. & M.E., and include political officials, planners, and communities through the following organizations. NOWRA has already begun taking steps on this issue.

- National Home Builders & Local Groups
- Real Estate

- Lending Institutions
- Well Drillers
- National Ground Water Assoc.

The M.E.s must be technically competent so they can explain all aspects of the onsite-decentralized wastewater treatment systems to their customers. The service providers must be professionals.

Onsite-decentralized wastewater treatment systems are a major and integrated part of the hydrological cycle—what comes out of the environment goes back into the environment. These systems return valuable water resources back to the cycle, as compared to centralized systems that only discharge into major water bodies and move water out of watersheds. All of the industry service providers are a part of this process—from site evaluators to designers, installers, inspectors, pumpers, maintenance specialists, to local regulators. All of these groups are integral to making M.O.M. & M.E. succeed.

At the same time, accomplishing this work is not without challenges. To succeed requires that we as an industry:

- Embrace Watershed concepts
- Integrated water resources management into our planning and design
- Provide certification for service providers
- Expand the resources of states for education and training through the
- NOWRA Institutes of Learning
- Educate policy officials and other groups about the value of onsite technology and decentralized wastewater treatment systems
- Inform Citizens
- Make the “Grass Roots Legislative Action Plan” the guide to changing regulations

What is our plan for the future? It’s up to you to get involved! We need to have all groups work together to make it happen.

- Citizens need to be involved so the political will is there to accept new regulations on the maintenance of onsite-decentralized wastewater treatment systems.
- The regulatory community then needs to step up and enact the regulations.
- The service providers need to be educated and trained to represent the industry as professionals.

The challenges are many, but there are far more opportunities. Without effective implementation of a maintenance program through management entities, this country will not have a viable onsite-decentralized infrastructure.

Onsite-decentralized wastewater treatment systems make up 25–30% of the wastewater infrastructure. We are here to stay, so let’s move it forward! ■

ONSITE *Journal*
NEWS FOR THE ONSITE WASTEWATER RECYCLING INDUSTRY

Features in upcoming Summer 2006 Edition

- Installer Academy and 2007 Annual Conference and International Program
- NOWRA Board of Director Candidates
- NOWRA Model Code Update

Copy/advertising deadline is June 15

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This issue of the *Onsite Journal* illustrates the phenomenal level of energy occurring in the onsite industry by NOWRA members. Through the various articles and reports, the work taking place both in the state associations and by NOWRA represents an important message. The collective activities and voices mean that NOWRA is making a difference on the national level. And, it is why your membership in this organization is important. We continue on an aggressive membership recruitment campaign to build our organization. Have you brought in a new member to your state group this year?

The work of NOWRA's Board demonstrates that it is listening to its members and responding to the needs. Guidelines for Drip Systems have been adopted by the Board and will be published and publicized. Interest in the new septic locator is growing—both from the membership and outside interests. NOWRA's website continues with its technical upgrades and is being linked with many other national sites. The

leadership activities in NOWRA's state groups and meetings show that the collaborative efforts are also stimulating new levels of efforts. This synergy is also evident in the education and training programs. And you too can be part of this leadership team—consider the request for 2007 Board of Directors Candidate nominations.

It is truly the people in NOWRA who are making the difference. Read the article about the role of women in the industry and learn how the view both the accomplishments and issues facing the states. Similarly, several state associations report on their activities presenting an ongoing commitment to the industry. And, we are delighted to officially welcome YOWA (New England) as the latest affiliated state association group.

Industry activism is evident in the educational features on safety, business and management with technical insights, guidance and learning. The significance of NOWRA's 2006 annual conference education program is one that cannot be duplicated in any other venue. We have the best of the best. We are also wrap-

ping up plans for the 2nd annual installer academy and getting ready to launch publicity for the 2007 conference and international program.

At the same time, there are also other competing issues occurring as we go to press that keep us on our toes with initiating new activism in protecting member interests. EPA's initiatives on nutrient capping in some states need to be addressed with respect as to how decentralized systems are being viewed by policy officials and their role in protecting groundwater. We have states where legislation is being introduced to eliminate the use of decentralized systems through central sewers. As you will learn from the message in this Journal, while we have great people working in this Association, we need to have more people involved in this work. As this industry grows, so do the needs to protect member interests. This country's greatness was built on grassroots activism, and NOWRA as an organization is no exception! ■

—Linda Hanifin Bonner
NOWRA Executive Director

How Federal Actions and State Events Ultimately Affect NOWRA Members Financially, and the Economy of the Decentralized Industry

During NOWRA's March Board meeting, one of the directors spoke at length about the situations occurring in his state where owners with perfectly good septic systems are being forced at a rapid rate to hook up to municipal sewer system—often at costs greater than \$25,000. In another state on the west coast, town officials received reports from engineers who design centralized systems with unsubstantiated statements about the costs and environmental problems associated with onsite systems.

In a small town in Connecticut, residents effectively organized themselves to prevent commissioners from taking their under capacity community onsite system out of service, and forcing them to pay thousands of dollars per household to build a new wastewater treatment plant.

At an EPA presentation to state officials in Maryland on nutrient reduction and trading programs—an issue being driven by federal goals to implement and enforce TMDL standards—regulators were advised that one of the strate-

gies to achieve these goals was to take septic systems out of use and hook residents and businesses to central sewers. What was also learned at that meeting was that in directions being given by EPA to states to remove TMDL's (total maximum daily limits—of pollutants allowed in a given body of water), a distinct perception by state and federal officials exists in one level of government that septic systems are a negative contributor to the environment. In fact, these officials place septic systems together with stormwater and sediment

runoff as being a significant nonpoint source pollutant.

The irony of this situation is that the perception by one EPA office is contrary to the position being advocated by another—e.g., Office of Wastewater Management. In this particular situation, reference to the US EPA 1997 Report to Congress, where the message that onsite systems are considered as a permanent part of the wastewater infrastructure, was never given. In listening to the presentation in this meeting, this message was certainly not on the radar screen. Nor does it appear that there is an understanding as to how onsite systems can be an effective partner in the TMDL nutrient reduction strategy.

These are just a few examples of situations occurring throughout the US that have the potential or are currently affecting the business interests of practitioners in the onsite and decentralized industry. When onsite and decentralized systems are not seriously valued as a legitimate and integral part of the wastewater infrastructure, these actions have the ability to financial impact your work and livelihood. When actions such as some of the examples cited are taken by policy officials and decision makers, it is at their origins that NOWRA has to be seen and heard as the voice of the industry.

Origins of Public Policy— Ultimately Affect You!

Federal agencies establish guidelines—strategies and directions that are given to the States to implement. At the federal level, budget appropriations are given to large scale central sewer projects, without consideration to the integration of decentralize systems. This is the origin of actions that ultimately affect industry practitioners.

At the same time, we find that these actions are often contradictory to the very strategic goals established by the US EPA—who stated in 1997 to Congress, that “decentralized systems are considered as an integral part of the nation’s wastewater infrastructure.” Today, EPA officials advocate in their public messages that achieving sustain-

able water resources management goals includes decentralized systems as an integral component of the wastewater infrastructure. So why are the positions of one agency different than those of policy officials of another?

Good question! Is it because these mixed messages and actions occur at the federal level illustrate that there is little communication as to how these contradictions create situations occurring in the states and localities that affect the decentralized industry? NOWRA is very concerned about the origin of many of these actions and events. An example of NOWRA’s efforts to address its concerns about the contradictory situations are the policy actions occurring in the Office of Water’s Underground Injection Program, that impact the policy goals of the Office of Wastewater Management for a sustainable wastewater infrastructure.

What is NOWRA Doing to Help Members?

This is the question asked by NOWRA state leaders at its March meeting in Denver and then again by Board members. It is a question that is called into NOWRA’s office and through e-mails.

NOWRA’s work is to be the diligent gather of information occurring at the different government levels about regulations and programs that negatively affect the onsite industry. NOWRA’s work is to facilitate the dialogue of information needed to solve situations. NOWRA’s work is to speak out on behalf of its members, and their role and work to protect water quality. These issues are challenging and complex today, and will continue tomorrow.

NOWRA’s work is get the answers to questions and technical information to the right people about the issues being addressed. Through the actions of its Board of Directors, its various Committees, and the leadership of State Associations, the national association (NOWRA) can support members in addressing these situations by understanding the driving factors that ultimately the economic well-being of the

members they represent, and the organizations mission to protect water quality.

Why this Message?

One of the reasons for this message is to inform members of how these various situations occur, and to let you know that NOWRA is listening to your concerns, and is seeking the right approach to address them. Another is to help you understand how the national office works at one level of government, in order to support members and the industry at another.

One of the ways that NOWRA accomplishes this work is participating in national programs, such as the EPA/MOU partners monthly meeting. This forum provides an opportunity to bring to the attention of other associations and EPA these various situations, and of the actions needed to address conflicting issues and to change perceptions and issues affecting onsite systems. Another is attending meetings at the federal and state level, to better understand how one agency strategy, may negatively affect others—and ultimately NOWRA members.

Members Role in Supporting Industry Issues

A few individuals within NOWRA cannot fight all these battles alone. It takes many people participating and paying attention to the issues going on in the industry. NOWRA encourages you to become more vigilant about situations occurring in your state and community. We encourage you to become more involved in supporting your state association leaders in addressing these many legislative issues. We encourage you to bring in new members to your state groups, and to get them involved in this work With the support of many, the collective action can make a difference—just as the collective action of a few in the Connecticut town, in Florida, Delaware and Maryland are making a difference on issues that ultimately affect NOWRA members. It is the unity of industry members that make a difference in protecting water quality. And, industry members are us. ■

Business Benefit Program Members

A special Thank You to the 2006 NOWRA Gold, Silver, Bronze, and Loyal Supporter Business Benefit Program Members. We greatly appreciate your support and ongoing commitment. A new promotional and acknowledgement program message is being developed that will be in all NOWRA publications and on the website.

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NOWRA March Board of Directors Meeting

On March 22–23, NOWRA's Board of Directors met in Denver, CO, site of the 2006 conference for a two day meeting. Participants included Raymond Peat, Brian McQuestion, Sara Christopherson, Mary Clark, Tom Groves, Gene Bassett, George Loomis, Dick Otis, Ron Suchecki, TR Davis, Mark Hooks, Bob Himshoot, Howard Wingert, Carl Thompson, John Thomas, Linda Hanifin Bonner, Jennifer Shehan Arnold. Vice president Jerry Stonebridge participated by speaker phone. Al Schnitkey was unable to attend due to hospitalization. Tim Frank was also absent.

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

Organization of the 501C(3) The National Onsite Water Resources Education & Research Foundation and its relationship to NOWRA's 501C(6).

The purpose of forming this organization is to provide NOWRA with the ability to pursue opportunities for education program resources from a greater range of organizations. NOWRA has discovered during the past two years in seeking funds for education and training, that most foundations and organizations accept applications only to 501C(3) organizations. In 2005, the US EPA also issued new eligibility funding requirements for projects which are only available to 501 C (3) and (4) organizations. This new ruling applies to the current grant for the education program for regulators on the model code. Separate accounts are established completely segregate financial transactions. The organization bylaws for overall governance and operations are being finalized for board consideration in June. These preliminary documents will be expanded upon during the next several months to fully define the work of this new entity.

Jerry Stonebridge (NOWRA Vice President) reinforced the importance of this organization for NOWRA to fund potential projects and for benefits that we cannot do at this time. He emphasized that the 501C(3) is not a "profit-making" organization—and it is the members who directly benefit. Decisions as to how the C(3) will function under the umbrella of NOWRA will also be considered by the interim board.

Board members agreed that NOWRA needs to be more aggressive in using this new Foundation to apply for grants for education programs and scholarships, and to integrate the ability to accept funds from wills, trusts and bequests.

✓ **NOWRA Board Actions**

- *Development of the draft bylaws for the 501C(3) will commence under the leadership of Howard Wingert.*
- *Team members include: Jerry Stonebridge, Tom Groves, Mary Clark, Mark Hooks, Dick Otis and Al Schnitkey*
- *An organization conference call will be scheduled the week of April 3rd.*
- *The group will use the draft material provided to delineate the governance and operations differences between the parent NOWRA organization 501 C(6) and the Foundation C(3).*

Status Report on the NOWRA Model Code Committee Work

Jerry Stonebridge reported that a final summary of the peer review findings has been sent to the work group. The goal is to have a final document and recommendations to the Board in August. Time is provided for committee presentation on NOWRA's 2006 conference program. Similarly, the Baltimore conference (March 2007) also represents an opportunity to have an education session for regulators. The Committee's work plan for this program should be completed and presented to the NOWRA Board at its June 2006 meeting in Baltimore.

An update on the letter sent to EPA from the NOWRA Board urging that SORA group conduct their annual meeting prior to NOWRA Conference Programs was reported by Raymond Peat (authorized at the February Board meeting) offering NOWRA's 2007 Baltimore conference as new location for SORA annual meeting, in conjunction with the EPA regional coordinators conference.

NOWRA RME & O&M Certification Programs

John Thomas, NOWRA State Leaders Chairman, presented a draft action plan to establish a NOWRA Certification Program for Responsible Management Entities.

✓ **NOWRA Board Actions**

- *John Thomas was authorized by NOWRA's Board to chair a task force that will produce a framework for organizing an RME Certifying Program. Task Force members to include T.R. Davis, B. Himshoot, M. Hooks, M. Clark & R. Suchecki*
- *Procedures for certifying O&M practitioners will occur through the NIOL, and become integrated with this program.*
- *A RME is to be an organization made up of individuals who are certified—the two initiatives are mutually supportive.*
- *The Executive Director will update a previous grant request for use to apply to various organizations to secure funding for the program.*

continued on page 10

NOWRA Institutes of Learning Implementation Plan

John Thomas, Task Force Chair, provided an overview of the developed draft program and requested authorization of NOWRA's Board of Directors to designate the Advisory Board members. He cited the ongoing involvement of State groups and importance of keeping the program credible and verifiable through a review and peer process. [See separate State Leaders Report on page 13.]

Part of the role of the NIOL Advisory Board is to locate funding sources to support State education programs. The message NOWRA is receiving from its states representatives is their need for a process to certify practitioners. With this type of program, the states have the capacity to do training. The most immediate example given was the WOSSA training program—where 70% of the training is performed by volunteers.

State group leaders identified the number one priority was education and training resource needs. States questioned why NOWRA is not taking more expedient steps to get training accomplished. Through this program, an opportunity exists for NOWRA to define itself by building the RME Program, with an O&M certification entity. This can be accomplished through the use of strategic relationships and partnering with groups such as consortium. This approach will also open new doors for NOWRA's state members for training opportunities.

✓ **NOWRA Board Action**

- A motion was made by T.R. Davis to authorize the task force recommendations to formally establish the NOIL advisory board and move forward with the implementation plan as presented; noting that the program as presented does not have a financial impact to the overall operations of the association. The motion was seconded by Mary Clark, with a brief discussion clarifying points following. The president called for a voice vote of Board members. Because it was indistinguishable, the Boards vote was taken by a show of hands. 8 members voted to approve the motion; with 1 opposed; and 4 members abstaining.

Other State Needs Requested

Bob Himshoot requests that NOWRA become a more active national voice and that the Board of Directors take positions supporting states with the political and legislative issues affecting the existing and future use of decentralized systems. Currently in Florida, central sewer hook-ups are politically becoming mandatory instead of giving owners the option to remain with decentralized systems. US EPA headquarters staff was also requested to take an aggressive role in this national effort to advocate and articulate their position supporting the use of decentralized systems, either through a letter or a personal visit. Existing Florida regulations, unless changed, will eventually prohibit decentralized industry members from access to business opportunities.

In responding to a request that action be taken by NOWRA on any issue, states are requested to provide a written statement to NOWRA's board for action; which then enables a formal procedure for the board to formulate a position statement to occur.

The Board agreed that EPA support could be addressed through the MOU group as a way to demonstrate its support.

NOWRA Headquarters Report

NOWRA Headquarters Report of February/March NOWRA staff work occurring on behalf of the Association.

- NOWRA Website and Septic Locator—has dominated staff time in the implementation phase. A live demonstration of the new updates was provided and how of the planned ongoing work. Continued refinements and troubleshooting of areas are continuing. Marketing of this program is also underway. In addition training of state administrators on the membership database is also occurring.
- Membership invoicing & recruitment is the second major work task underway. A matrix was provided in the Board's packets identifying the materials to be reproduced and mailed to the 6,000 members during the next two months. This is accomplished after the states complete their updates. With the new web site

upgrades and member database, NOWRA's office will have the ability to invoice states quarterly and keep records current. A national recruitment program is underway.

- A request to update the Board on status of affiliation agreements sent in by the states was made. Support is also being provided to some states in the organizational phases.
- Business Benefit Program—an updated list of participants shows that the 2006 marketing efforts have been successful with a 15% increase over 2005.
- Draft Health Insurance Program Marketing Plan has been sent to the communications and marketing group for input.
- NOWRA Conferences—2006 and 2007 have active planning and development work underway.

Committee Activity Reports

Communications and Marketing Committee. Responses to the RFP for public relations services are being reviewed by Committee. They will forward their decision to the Board. Folders of information are available for Board inspection.

Conference—2006 & 2007. An update on the Conference Committee's earlier meeting to recommend that the exterior area of the ballroom (pre-function) be used for non-profits, overflow and local Colorado businesses was presented.

Education & Training. A preliminary contract is in place with the Riviera Hotel for Installer Academy, which will be provided to Sara. Program efforts are underway.

Technical Practices. Dick Otis presented the revised document to the Board that incorporates the requested information regarding O&M reference (p. 2—noted two new references) which the members of the technical practices committee approved.

✓ **NOWRA Board Action**

A motion was made by Bob Himshoot to approve the Drip Guidelines Document as presented was seconded by Sara Christopherson. Board members extended their appreciation to Dick and the committee for incorporating the

information and completing this important work. The next step is to have MarComm Comm review the document for style/presentation and final presentation for publication. The motion was approved with one abstention (D. Otis as chairperson)

NOWRA Future Conferences

A discussion of the results of the Conference Committee meeting resulted in the request to ask the “exhibitor” component of conference committee about the preferences for length of time and format. Future locations to be investigated include:

- 2008—Seattle, Oregon, & Sacramento
- 2009—Minnesota and Indiana
- 2010—Savannah, Georgia, and Charleston, South Carolina

Other changes being examined are that the full lunch program may be changed to another (more fun) venue—e.g. separate off-site reception. April is the first choice and May is the second for time of year for the programs.

The Executive Director then requested that the Board define procedures to respond to individual requests to NOWRA for conference sponsorship in which registration fees are waived and even when lodging is provided. A more formalized procedure needs to be in place as to the receipt of funds and disbursement; how much is to be provided, what is the criteria for allocating funds to recipients.

✓ NOWRA Board Actions

- This task was assigned to Finance Committee (Brian McQuestion, Chair, Ron Suchecki, and Gregg Graves). Tom Groves will participate as the Board liaison member.
- A motion by Dick Otis to approve NOWRA participation and signing of the Water Quality Association Partnership Agreement was seconded by Bob Himshoot, and unanimously approved by the Board. The document will be presented to the Water Quality Task Force at their March 28th meeting by the Executive Director.

NOWRA Board of Director Nominations

Board members vacating their positions in 2006 include Tim Frank and Gene Bassett—Installer/Contractor; Ron Suchecki—Manufacturer; Al Schnitkey (replacement for Tina Edvardsson) and Brian McQuestion. A re-examination of Board categories will occur relative to NOWRA’s By-Laws. In addition, the state leaders committee has requested representation. The Nominations Committee is chaired by Jerry Stonebridge, and suggestions should be forwarded to him for consideration.

Next NOWRA Board Meetings

NOWRA’s Next (face to face) Board Meeting is scheduled to occur June 8 and 9 in Baltimore, MD. This meeting includes a planning session and tour of the Marriott Waterfront Hotel for NOWRA’s March 10-15, 2007 Annual Conference and International Program. In addition, NOWRA’s Board has monthly scheduled teleconferences on the 3rd Tuesday of the month—April 18th and May 16th. ■



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NOWRA 2006 Installer Academy

Introduction

Leveraging from its first year of success, planning for the NOWRA 2006 Installer Academy education and training programs is underway. This program will be held December 4–6, 2006 in Las Vegas, NV at The Riviera Hotel. Development of the education and training sessions for this program is directly focused on advancing the knowledge, skills and professionalism of members of the “installer and service sectors” in the decentralized wastewater industry.

For 2006, the NOWRA Education Committee is seeking the support of practitioners to conduct these sessions. Interested participants are requested to review the following selections, and provide their responses in the format described in the shaded box below.

See www.nowra.org/vegas for more information regarding the past and future conferences. For 2005 several courses were developed and now NOWRA is looking for new trainers and additional training topics to include in this conference. The education is similar to college courses where the increasing course number requires that prerequisites have been met building on an increased level of knowledge on a topic. Each level is anticipated to represent at least 4-8 hours of training. Ultimately, many of the proposed sessions may be offered in future years.

Proposed Education and Training Programs

Educational offerings for the 2006 Installer Academy and future sessions will be expanded to include basic and advanced training in four areas.

1. **Technical**—Topics may include:

- a. 101 NOWRA A to Z of Onsite Wastewater Treatment (already developed by NOWRA)
- b. 201 Installation of Conventional Systems (offered previously in Albuquerque, NM)

- c. 202 Installation of Non-Conventional Systems
 - d. 203 O&M of Conventional and Non-conventional systems (already developed by the Consortium)
 - e. 301 Troubleshooting Systems (offered in Las Vegas)
- (101 NOWRA Onsite Systems A to Z is a basic requirement for all courses)

2. **Practical**—Preference in selection for these sessions will be for those containing “hands-on” activities. Topics may include:

- a. 101 OSHA Standards
- b. 102 ASTM (and other) applicable standards (rock, pipe and fittings, etc.)
- c. 103 Operation, Maintenance and Safety with Equipment
- d. 201 Confined Space Entry
- e. 301 Basics of Wiring for the Onsite Installer such as
 - i. NEMA rating system for control panels,
 - ii. How to properly maintain UL integrity on control panels,
 - iii. Flexible conduit vs. rigid and how to use it properly, burial depths, etc.
 - iv. Applicable parts of the National Electrical Code) NEC to installers.
- f. Other (as deemed appropriate)

3. **Business**—Possible topics may include:

- a. 101 Introduction to Business Practices
- b. 201 Winning, Compensation, and Bonus programs,
- c. 301 Buying, Selling, and Getting OUT – Acquisition and Consolidation strategies and others

(101 – Intro must be offered as it is the basis for all courses)

4. **Vendor or State Specific** training:

- a. Additional opportunities exist for vendors to conduct general training sessions or state specific session on their products. Contact NOWRA directly for more details

Request for Training Presentations: Requirements and Preparation

This request for presentations (RFP) is aimed at identifying those in the decentralized wastewater industry who are interested in advancing the training capabilities and skills of onsite of industry professionals at NOWRA's annual Installer Academy. This RFP is not solely limited to the topics previously identified. However, it is an important goal that over the 3 days of the program, that a range of topics that benefit and advance the skills of onsite professionals be offered.

All responses for the 2006 Installer Academy Education and Training sessions should be emailed to Sara Christopherson, Education Committee Chairperson at: shc@umn.edu.

The deadline for submitting these proposals is June 30, 2006. Responses should include at a minimum, the following details.

1. Category, title with number listing (100, 200 or 300 level) of education and training to be provided
 - a. Technical
 - b. Practical
 - c. Business
 - d. Vendor or state specific training
2. A description of the course information that includes learning objectives. Training can be done for 1 hour, 2 hours, ½ day, full day, multi-day,

etc.). For sessions longer than 4 hours in length preference will be given to those with multiple speakers.

- a. Name of individual(s) providing the training
 - b. Agenda for the proposed session or training identified in increments of no more than 1 hour.
 - c. If more than one trainer is speaking, the agenda should indicate who is providing each session.
3. A description of the hand-out prepared course materials to be provided to attendees (not only powerpoints).
 4. A statement as to whether NOWRA can use the materials in the future.
 5. All photocopying of materials will be the responsibility of NOWRA, but written materials must be provided by November 1, 2006.
 6. All costs to NOWRA for the development of materials, course instruction, and other fees expected or requested. Speaker registration fees will be waived. Travel assistance can be provided on a case-by-case/need basis. Due to the infancy of this program, NOWRA is looking for travel and/or cost considerations that the speakers can make to help make the program successful.

7. A resume and bio for each speaker which highlights areas of expertise and experience relevant to training onsite professionals.
8. References.

Selection and Agreement of Terms

Speakers will be chosen based on the trainers' qualifications, the appropriateness of the topic to installers and service providers, and proposed fees.

In selecting the session instructors, and prior to giving official notice to proceed, NOWRA will enter into a contractual agreement with the respective parties. This agreement will clearly define the expectations, responsibilities and financial commitment of the respective parties for this work. If development time is including in the funding of the proposed education program, NOWRA will retain the right to use these materials within the ongoing education and training programs of the NOWRA Institutes of Learning. Credit will be given for the development and production of the materials to the proposer.

All program development materials for the Installer Academy occur under the auspices of the NOWRA Education and Training Committee. All contractual arrangements occur through the NOWRA headquarters office.

NOWRA State Leaders Committee Meeting



On March 20-21, representatives of twelve NOWRA State Associations participated in their semi-annual meeting at the Adams Mark Hotel in Denver Colorado, to discuss organizational topics, gain knowledge of management abilities and identify new opportunities to advance member programs. Participants included: John Thomas (WA) Tony Mendes and Lee Orton (NE) Ted Kirk (FL), Tom Groves (MA), Ken Walsh (DE), Charles Schmidt (IO), Richard Becht (IN), Brian Scheffy, Becky Roland (CO), Ron Suchecki (TX), Brian McQuestion, (WI) Alison Blodig (KS) Linda Hanifin Bonner and Jennifer Shehan Arnold (MD).

Primary topics addressed through presentations and handouts were Managing Association Finances, Implementing the NOWRA Institutes of Learning, and Membership Recruitment. The group also participated in a demonstration of managing membership databases through the new NOWRA administration program. The two days of work and subsequent discussions resulted in the following positions taken by the group, and forwarded to the NOWRA Board of Directors for their March 22-23 meeting.

NOWRA Institutes of Learning—Implementation Plan. There was unanimous support for the identified actions to formally initiate the NOIL Program. Several states have already successfully had training and started their programs. Additional states are identified for a spring training program. The position of the State Leaders Group is that this program is an effective process for states to establish and deliver needed education and training and that the program framework provides sufficient flexibility to integrate other existing programs. Florida has offered the FOWA Training Center for consideration as a regional facility. This offer also stimulates additional opportunities to initiate “regional centers of excellence” by using other state group facilities in a collaborative framework.

NOWRA Database Administration and Septic Locator. The group is excited about this new program to support their associations work; and conveyed their congratulations to NOWRA committee and staff for the tremendous effort to bring this project to fruition.

Member Dues—pro-rating of new members and mid-year. The group expressed the need for NOWRA’s Board to provide guidance and a decision to them on payment of dues at a mid-year basis.

Request for Board support for NOWRA to accept membership applications from individuals in active affiliate organizations, in order to participate in NOWRA programs and events.

By Law Change for Board Delegate. The members are requesting that NOWRA’s Board amend their bylaws to include 1-2 seats for (State Affiliate representation).

Additional Topics. Responding to the question as to what the States believe NOWRA’s top 3 goals should be to communicate the national mission statement to the membership. During the discussion, the following two goals emerged.

1. Protecting the industry at the national level
2. Enabling programs that enable the (states) to be financially self sustaining.

These items will be further explored at the August 2006 meeting.

Questions for NOWRA Board

State Leaders also posed the following questions to the NOWRA’s Board of Directors:

1. What is NOWRA’s position on supporting its member independent contractors to manage onsite systems that are or may be threatened by competition with larger utilities?
2. Can NOWRA’s define its position to support local political issues and assess support for each state’s individual legislative issues, or focus on the national picture of interests—e.g. going into state(s) or capital hill.
3. What is the process for NOWRA taking a position on individual states

situation—through a request made to the NOWRA Board of Directors to support a state’s position or white paper?

4. Some state associations are considering becoming an RME—contracting out to the independent qualified business—both sides as members of NOWRA. Would NOWRA commission a task force to investigate the association becoming the entity for operation as a utility? ■

PLAN TO ATTEND THE *State Association Leaders’ Meeting*

Sunday, August 27, 2006

Adams Mark Hotel
Denver, Colorado

NOON

Lunch with NOWRA Board

1:00 p.m.

State Leaders Meeting Convenes

Topics to be Addressed
(others being identified)

- 2007 Legislative issues affecting states
- 2007 Education and Training Programs
- 2007 Membership Development

Impact of Water Softener Chemicals on the Operation of Onsite Systems

As more and more homes throughout the US employ both the use onsite technology for wastewater treatment and water softening systems, the nuance as to how these collective constituents interact in the equipment treating wastewater is raising numerous questions. These questions range from wastewater installers concerns about the long-term affects on the treatment system components to water softener industry viewpoints about the value to make water usable. It appears that everyone involved in this conundrum is asking—*What are the actual problems being experienced—and why are they occurring—and where is the research data available to find a solution?*

And, as we are all finding out, answering these questions is not an easy task. It requires examining the numerous situations in which the various water softener ingredients interact with the biological treatment process for wastewater. This means understanding how elements resulting from homeowners daily use of washing clothes, garbage disposals, cleaning chemicals and medical wastes contributed to the problem. It also requires defining the impacts of the level of chemicals found in the mixed water characteristics.

This issue—and its questions—have catapulted into a legislative debate in

several states. As a result, the leadership of two national organizations, representing its members in both the onsite and water softener industries decided to combine forces. This topic was the featured theme of a day-long technical symposium at the NOWRA October 2005 Annual Conference in Cleveland, Ohio. The two national organizations representing their collective professional and industry interests—the Water Quality Association, and the NOWRA Onsite Wastewater Recycling Association collaborated on a joint fact finding research activity and discussion. The October symposium focused on defining the available and existing research, situations being experienced by installers and service providers, and where more investigations need to occur to better understand the depth of the problems. Each of the groups presented their information hoping to identify a commonality of the problem and future process to continue this work!

This October meeting was followed up with a March 2006 joint meeting in Chicago, Ill. The newly formed NOWRA/WQA Water Softener Task Force convened at the Water Quality Association conference and exposition for their first face-to-face meeting. Task Force participants representing the two associations include: NOWRA mem-

bers, Matt Byers, Jim Converse, Bruce Lesikar, Ron Suchecki, Mike Corry, and Linda Hanifin Bonner; WQA members, Joe Harrison, Bob Boerner, Dennis Ruppert, DJ Shannanhan, Kip Vangsgard, and Carlyn Meyers. While task force members discussed their agenda topics, the meeting was an open session and also included over 30 interested participants observing the meeting.

The meeting was chaired by WQA member, Bob Boerner and Matt Byers (NOWRA Technical Practices Committee chairman). During the discussions, the group reaffirmed it's commitment to collaboratively tackle the myriad of issues within this topic. They also outlined future activities that include collecting information about known onsite systems experiencing operational malfunctions resulting from chlorides, and understanding how filters work to inhibit chloride's impacts in the treatment process.

WQA members provided a data collection matrix to begin focusing on the uses. And, NOWRA members updated the group on the Consortium's completion of operation and maintenance manual and how this material provides a baseline to address the examination of these systems. Task force members agreed to make visits to various locations throughout the US, where it is

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known that these situations are occurring and to collect this initial data. A list of state locations where onsite systems are experiencing operational difficulties includes Virginia, Delaware, Texas and Nova Scotia was discussed. NOWRA and WQA will also publicize this work in order to obtain additional information as to other locations.

Once the data is obtained, the findings will be examined, correlated with other technical issues and conclusions presented by the respective group during conference call meetings. Future recommendations of the task force are anticipated to include a long-term research study that focuses on the more clearly defined issues, resulting from the initial data collection. Matt Byers

reinforced that the onsite industry's concern is not with softened water—but with the reported effects of water softener backwash brine on each process phase, and with the reported accumulative effect on the treatment phases. He further emphasized that system owners are not always aware of the cumulative affects that their daily use of water has on their onsite treatment system.

The group agreed they must look at what is working and what is not—and above all, to endeavor together to secure funding sources to support this work. Additional members with microbiology and soils expertise are needed on the task force. Interested persons are asked to contact Matt Byers (800-928-7867) or Bob Boerner (210-226-5344).

The group also agreed to convene a task force meeting during the NOWRA August 2006 Annual conference (Denver, CO) and to consider the opportunity of the NOWRA 2007 Annual Conference to present a full report on this work. Information will be promoted in both the NOWRA Onsite Journal and website, and WQA publications. Industry members experiencing operational issues associated with what they believe to be affects of water softener chemicals are asked to contact the respective association headquarters offices (NOWRA and WQA). ■

—LINDA HANIFIN BONNER, PhD
NOWRA Executive Director

Septic Help — New Public Information Service

<<http://www.septiclocator.com>> is a new online search directory, from the National Onsite Wastewater Recycling Association (NOWRA). This site is dedicated to providing information resources to the public, septic system owners, policy officials, builders and others who are seeking help about the operation of their system, obtaining information on various products, or have questions about regulations, the permitting process, and where appropriate systems are available and usable in different locations. The site identifies local and state regulators, finding a qualified installer or inspector, as well as reputable NOWRA businesses providing a range of products and services according to zip codes. The “septic locator” combines a comprehensive listing of companies and individuals with the needed skills and expertise to provide solutions from a range of basic issues to unusual circumstances—who are all members of the National Onsite Wastewater Recycling Association (NOWRA) and operating within an established code of ethics.

The site's unique search functionality also assists septic system owners, buyers, builders and others in the planning process of communities to locate local product suppliers, service providers or individual industry practitioners. No other site on the web offers this kind of direct access to septic wastewater professionals and products. <<http://www.septiclocator.com>> is also reached through the NOWRA website (www.nowra.org) as well as with the NAHB-RC ToolBase program. Google links are being established and efforts are underway to work with the National Realtors Associations and Banking Institutions.





NOWRA 2007/2009 Board of Directors' Positions Available

Positions Available

In 2006, three positions on the NOWRA Board of Directors will be filled at the August election.

The position categories include:

- O&M/Service provider,
- Installer/contractor, and
- Supplier/vendor

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

Expectations/Roles and Responsibilities of NOWRA Board Members

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

Application Process

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

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

In addition, please provide a brief statement that answers the following questions.

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

Send this information by June 30, 2006 to NOWRA's Executive Director, Linda Hanifin Bonner, either by mail (PO Box 1270, Edgewater, MD 21037) or email: lhbonner@hanifin.com ■

Excerpt from

NOWRA BYLAWS

(Adopted 2004 Updates)

ARTICLE V. GOVERNANCE

Section 1. Organization

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

Section 2. Structure

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

Board Member Sectors include the following designees.

- (a) Site Evaluator/Soil Scientist, Designer/Engineer*
- (b) Supplier/Vendor*
- (c) Installer/Contractor*
- (d) Operator/Manager/Maintenance-Service Provider*
- (e) Compliance Monitor/Regulator*
- (f) Academic/Researcher*
- (g) VIP (very interested party)*

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

NOWRA Women in Action – PART I

A year ago, we began a new section in the *Onsite Journal* that spotlighted the work of the Association's State Leaders. Our commitment is to promote the tremendous work being accomplished in the states by the many individuals who are dedicated to advancing the industry standards and professionalism.

This spring, however, as state associations transitioned individuals into the leadership ranks during their annual meetings, an interesting event was noted. NOWRA's has many women involved in this facet of the wastewater industry in various professional capacities—perhaps even more than in the centralized sector. This is a particularly remarkable situation, since the wastewater industry is predominantly male. The exception may be in the regulatory sector.

Through my telephone discussions with the Association State Leaders on their work and updates of their needs, several points became apparent. These women are professional individuals who love their careers and the work they are involved in—in the same manner as their male counterparts. And they are equally committed to advancing the industry's work. Within NOWRA's 32 state affiliated associations, eight currently have women in the executive leadership positions. Pretty impressive statistics!

They have significance, because as a woman professional working in the wastewater industry for nearly 30 years, "usually participation is less than 10%! However, I've also observed over the past decades the emergence of more women professionals in many difference capacities. These women are

not just sitting behind a desk, but are actively involved in field work—implementing the science and technology and services of this industry.

NOWRA has had been fortunate over the past years to have women serving on its Board of Directors — Brenda Guy, Jean Caudill, Tina Edvardsson and Peggy Minnis— with current members, Sara Christopherson and Mary Clark. Women chairing committees (Karen Borgeson) are also actively involved in the work of the decentralized industry.

In my request to interview them about the work that we as an association need to pursue, the goals they desire to accomplish as leaders and issues facing their respective states, I also asked if they would be willing to share any experiences as women professionals in a male-dominated industry. As a researcher, the obvious questions about diversity and equality had come to mind So I was intrigued as to what experiences these women may be encountering, if any, or have in working with their male colleagues. Are there issues of sexism, equality, and diversity occurring in the various work environments within the onsite industry?

Their responses, reported in the following segments, are both candid and open about the professionalism and opportunities for all individuals that exist within the decentralized industry—both genders. These messages are also an indicator as to why NOWRA members and the onsite industry have an incredible future ahead of it.

Alison Blodig

Past President of the
Kansas Small Flows Association

Allison Blodig has been the Regulatory Affairs Manager with Bio-Microbics, Inc., in Shawnee, KS for the past five years. Her career in this industry began 13 years ago as regulator with the KS Dept of Health and Environment in rural programs and then continued with the Johnson County, KS Environmental Department where she did food service inspections and ran the commercial onsite wastewater program until she left to join Bio-Microbics in 2001. In working with Bio-Microbics, one of her first duties was serving on the NOWRA Model Code Committee, representing business interests. Her work responsibilities involve obtaining and maintaining approvals in the USA and abroad; sizing projects for larger systems; troubleshooting and field work; training, tradeshow and presentations. Allison very much likes her work which provides just the right amount of diversity and challenge and above all feels that Bio-Microbics is a great company to work for.

In her specific professional role within the regulatory field, she finds that there are more men than women. At the same time, she sees that there are many changes occurring, which might be a sign of catching up with the curve. Ms. Blodig believes that if she desired to pursue specific work areas or tasks, the opportunities would be there—free of impediments. Often times, being a woman in a predominantly male field perhaps even has an advantage. She

continued on page 18

believes that overall, it is the manner in which you present and conduct yourself in the business setting. If you are not straight forward and sincere, you loose out on the opportunity to earn respect

Leadership Accomplishments

Allison served as President of the Kansas Small Flows Association from February 2005 through February 2006. During which time, she believes that the Association made significant strides forward in developing training programs and solidifying a stronger relationship with KDHE—the state regulatory agency. The relationship with KDHE has been established in a working mode, and the group is beginning to form goals and have also applied for a grant to help expand the training that is already underway. Allison believes this is an important lesson to pass on to other states. If the Association wants to maintain momentum it has to forge a positive relationship with the regulatory officials. You want to have them as a partner in your programs not an adversary. She knows that KSFA has an excellent incoming President in Mr. Tim Wagner and an outstanding board of directors who will carry on the initiatives started over the past year.

Priority Issue(s)

1. Training for the industry—in all disciplines. The decentralized industry has an important role in the wastewater infrastructure in the State of Kansas. It is essential that all people are educated and trained so they are ready for the changes that are here and will come in the future.
2. Increase the atmosphere of professionalism in the industry because what we do is important and has an impact that reaches farther than most realize. Allison would like to see people value their work by not striv-

ing to be the low bidder and taking pride in a job done right.

Getting People Involved

Ms Blodig says that overall, more people need to be involved in the Kansas Association and more members need to be involved in the day to day work of the association like with committee work. We are still struggling to find those folks in the installer demographic that see the value of our association. As we work to increase membership, being professional in our approach is important as well as finding out what the people want to see in the organization before they will participate. NOWRA has made great strides in finding ways to help in this area. Many folks do not want to things to change but they will and the Kansas association is taking a leading role in making sure that they are prepared so as not to be left behind.

Jennifer Brogden

Past President of the Tennessee Onsite Wastewater Association

Jennifer Brogden began working in the onsite industry as a result of a technical mentor relationship with Jim Watson, PE (TVA retired) who worked on the EPRI/TVA Drip Guidelines. She also was assisted by an extraordinary woman serving as a role model, Leanne Whitehead (a.k.a. TVA Sewer Queen/Diva), with TVA's Customer Service and Marketing group who opened doors and provided opportunities to become involved in the industry.

Jennifer is currently working as a Sr. Environmental Engineer in TVA's Environmental Engineering Services workgroup. In this capacity, she is responsible for completing environmental engineering studies and projects for internal and external TVA customers, relating to surface water quality and wastewater engineering, design,

and modeling. At TVA, this group comprises just less than half women. While, overall in the onsite industry there are more men, as a government environmental engineer, she finds that professional advancement opportunities for women to be equal and primarily depend personal drive and aspirations. In the engineering industry, however, she sees women as still having to prove themselves.

Leadership Accomplishments

Brogden is pleased to have been involved in the leadership of state organization, and particularly proud of her role and involvement in the start-up of the Center for Decentralized Wastewater Management. As a leader of our State Association, it has been important to discuss and clearly define the organization's mission and strategy—which is still evolving. An important element is using the Association to encourage State officials that onsite professionals need continuing education.

Priority Issue(s)

Of highest priority is ensuring that appropriate ongoing training and professional development for onsite professionals and regulators occurs on a regular basis. Having the ability to design and apply alternative technologies when they offer the most cost-effective design solution and the best treatment technology for the receiving environment is essential.

Getting People Involved

Tennessee is having success with a small group of progressive thinking people that want to be involved in advancing and promoting the industry. Until continuing education is required by the State of Tennessee, however, the Associations effectiveness as an organization is limited.

Hilary Moore

President of the Delaware Onsite Wastewater Recycling Association (DOWRA),

Hilary Moore has been involved in the onsite industry for almost eight years. Soon after graduating college, Hilary landed a job as a Regulator for the Department of Natural Resources and Environmental Control. Her responsibilities include overseeing the permitting, installation, and compliance of large and community onsite wastewater treatment and disposal systems (owtds), as well as innovative and alternative (IA) owtds. Hilary also performs product approvals and is in the process of developing Delaware's operation and maintenance guidelines for all IA systems.

In a predominantly male industry, she has become only the second woman in the leadership role for DOWRA, and considers herself one of the guys in most cases. When asked how it feels to be a woman in the industry, Hilary stated, "I don't look at my role as a woman in the industry but one as an interested party who tries creating changes in the environment that would better the industry. I have always prided myself on treating people how I would want to be treated, and I think that is what has allowed me to gain the respect of my peers. It isn't about being a woman; it's about being a leader and what you do with those opportunities presented to you."

Leadership

As the state association leader, Hilary sees a future of change in the onsite industry, one in which DOWRA's voice will be more prominent than ever. Hot topics for this newly elected president include: working with the local governmental agencies to stop the use of wastewater as a means to control Delaware's overwhelming growth; defining the roles between utilities and service providers; the implementation of pollution control strategies; and working with local colleges and state

governments in providing the industry with the most up to date educational programs.

Getting People Involved

Hilary attributes the recent successes in getting people involved in the Association's work to the fact that the leadership is taking a more active position on subjects affecting members. The DOWRA has proven over the years that they can change the industry in which they work. They also encourage members to attend quarterly board meetings and hold them in an accessible location. Over the years, they have learned that one of the best strategies to encouraging camaraderie is through social functions. DOWRA holds a golf tournament, clay shoot, fish outing and crab feast open to all members. They also want all members to know that the Board of Directors is just a phone call away.

Hilary says that being the president is a lot of work, but it couldn't be done without the help of a great board of directors and the support of the membership in the on-site industry!!!

Janet Murray

President of the Missouri Smallflows Organization

Janet Murray got involved in working in the onsite industry when she was hired as a local environmental health specialist in 1979. At that time Missouri had no onsite sewage laws, but federal lending programs such as Farmers Home Administration and the Veterans Administration required that on-site sewage systems be properly constructed in order for families to receive federal loans. In 1995 the state passed a law governing onsite systems to

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Solutions

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address the sewage problems at the Lake of the Ozarks however a compromise with the Farm Bureau made any system constructed on properties of over 3 acres exempt from the law unless a complaint was received. In the 10 years since the passage of the state law, Janet has worked on several of committees in an attempt to get the state law amended. Trying to get law changed or amended is difficult, as the lobbying by the farm bureau is a very powerful influence over legislators in a farming state like Missouri.

With this new law, new responsibilities also occurred, which meant that state employees and local environmental health specialists had to learn much more about onsite systems, especially the more advanced systems. The State set up contracts with individual counties to permit and inspect those systems that were required to be inspected.

Good enforcement procedures did not and still do not exist in the state laws—which meant there was no way to go back to make people install a good system. Similarly, many installers did not understand the new state law and as a result, counties began passing their own ordinances. Janet attempted to convince her county commissioners to pass such an ordinance, but they resisted. Finally in 2005 Randolph County found themselves with three new commissioners who got actively involved in passing an on-site sewage ordinance which applies to **all** new construction. The new commissioners could see that growth was occurring within the area and decided that now was the time to take charge of the situation. Overall, this has been a 10 year endeavor to get people, realtors, bankers, commissioners and legislators knowledgeable about issues regarding treatment of on-site sewage. Missouri is

beginning to see growth occurring in the outlying areas, where these systems will be used.

Janet's title is Environmental Health Supervisor and she is responsible for oversight on food, onsite, emergency response, inspection of motels, daycare centers, pools, and since 9/11, bio-terrorism—some air quality—“almost anything that does not fall within the realm of nursing”. In addition, she also teaches management courses. In the state of Missouri, the work of environmental health encompasses a very large field of professional issues. Right now, while the work of the onsite industry is her dominant component of work, because of her emergency response training, she could be called out of county to help other out of state emergencies.

With respect to the diversity of workers, the environmental health field in the state of Missouri is pretty equally distributed with male and female professionals. “Twenty-six years ago, when I attended my first professional conference, there were only 3 women in the room and I was the only one from a rural area. Now, there many more. Still, the overall wastewater industry, particularly the installer profession, is primarily male dominated. But with more innovative systems, there is a greater role for a diverse group of professionals as technology improves many of the practices.”

How do we get the word out about the career opportunities for the onsite industry? Educational institutions — through the universities (environmental health studies and technology)—getting the students coming out of these programs interested is how we can develop the next generation. At the same time, students do not understand what environmental health is about until they learn from a specific source or on a specific issue. In all phases of environmental health—Murray believes there are not enough of us around.



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She believes that NOWRA's Installer education program can be the catalyst to changing the industry—particularly as older practitioners have the younger generation taking these courses. It is these professionals who are bringing in new information and ideas that are more than just the standard septic tank. With the NOWRA Institutes of Learning, an industry mechanism is now in place for pursuing new technologies and building the educational capacity.

Leadership Accomplishments

As president, Murray believes that to date she has not done anything particularly extraordinary. However, it is the knowledge gained in her work, with a commitment to continue personal education and development that she is passing onto people working with her. She believes there is so much more to this profession than many recognize. "Throughout my professional career I have tried to make a difference—to make the system better for those that work in the profession and those that follow. I have worked with State and county people to revise rules and am currently on a committee that is updating the State Food Code to the 2005 FDA Code. The changing dynamics in women careers to move from traditional professional roles into unique careers is invaluable—and, no one is too old to learn." Janet is really excited about the challenges and work within the onsite industry and the Missouri Association. "After all these years, I still love my job and what I do—especially helping someone solve a problem; when I can step out of my regulatory role to help—then the gratitude is the reward." "Staying focused with the job as a professional offers me plenty of challenges—no complacency."

"The pressing challenges and priority issue(s) for Missouri are threefold. I believe the biggest in the state is getting state laws revised to cover all aspects of onsite technology. This cannot just be regulating people with less than 3 acres; that is confusing for homeowners and does not accomplish the major environ-

mental protection and water quality needs. Secondly, the current Governor of the State wants to move all water and sewage to one agency. Currently the Department of Natural Resources deals with public water and sewer. Health deals with individual and small private water and on-site sewage. If that changes it will take a lot of time to overhaul what is currently there and get the new system working efficiently. Although I can't say that I am entirely in favor of moving everything to one agency, if that what the legislature decides, then as President of MSO, it will be up to me to help make that a successful change and still keep the program integrity. Thirdly, I believe that educating our installers and working with industry professionals to give the best possible programs, service, and technology is essential. In this profession the old adage is applicable—if you snooze, you loose."

Sue Schambureck

Wisconsin Onsite Wastewater Association President

Sue Schambureck is a master plumber restricted service—house wall out (water & sewer), no interior plumbing—certified soil tester, septic system designer, service provider and inspector. Her typical day of onsite work begins at 5 am and does not end until 5 p.m. Definitely a morning person, Sue loves the challenges and the diversity of her work with Madson Tiling & Excavating, Inc.. In this capacity, she performs soil testing procedures for private onsite wastewater systems and stormwater management (to comply with new Wisconsin regulations); conducts all inspections for standard and advanced systems; designs systems, does cost tracking, sewer & septic system estimates, GIS work and manages her installation crew. She defines herself as a "hands-on" person, who loves to be working in the field and getting involved.

Schambureck's career in the onsite industry began almost serendipitously—while

working on another job in her thirties. When offered this job, she saw the opportunities available that she would never have thought of pursuing, when examining career path choices at an earlier part of her life. Madson Tiling & Excavating is a 38 year old, 15 employee, family-owned company whose primary main work is septic systems, residential and commercial excavating, and tiling. As a result, there are few slack periods.

As a female professional at Madson, she finds that more women are now working in this industry in the 21st century than in the 1990's. Although, high school and vocational career training programs rarely focus on the diverse professional opportunities for onsite industry—let alone, the women in these jobs. As Schambureck speaks at high school career programs, she sees many more male students attending classes and very few females. While the onsite industry is still today, thought of as "a man's world" women are readily finding that the sciences and diversity of the projects to be conducive to good thinking skills. Yes, colorful language sometimes exists in the work settings. But what some people will interpret as "sexist" is often more "men being men" and part of their "culture." There are also more changes occurring daily in the thoughtfulness and consideration of others in the work place, with a much stronger acceptance of women in this world.

Schambureck laughs as she describes her previous "self"—beginning in the onsite industry as shy and introverted. However, being in a man's world soon made her realize this form of behavior was not going to work. She now voices her opinions and speaks out on positions and credits this new world with being self-sufficient and having the capabilities of "standing her ground."

In her position at Madson, there are definitely no differences in the professional advancement opportunities for the men and herself. In fact, she has been given the lead to take on additional work she

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NOWRA Women in Action *(continued)*

wants to do. As a result, she has off-loaded work from the owner and added new professional services to the company—soil testing, designing, and installing in her scope of responsibilities.

Her involvement in WI Onsite Association started with her previous employer—who had her attend one of Wisconsin's conferences. In these meetings she brought up new issues for the groups consideration. This led to her employer recommending her for a position on the Board of Directors. From there, she was asked to become the Vice president. She describes Wisconsin's Board as a wonderful group of dedicated individuals. Her challenge in this work is not the responsibility—it is proximity and location of individuals who are involved in making the decisions for the industry. While most of the association activities occur in Madison—Wisconsin's capital, she (as president), lives and works 3½ hours away. As a result, association activities are managed through teleconference and emails—with two face to face meetings through the year. Since a lot of board members are in the field during the day, evening meetings are held—with great discussions and attendance. With this process in place, the group gets a lot of work accomplished.

Schambureck believes that the more pressing and priority issue(s) for the state include uniformity of regulations and standards of services (POWTS). As president, her agenda/goals providing an existing POWTS evaluator certification to have completed by fall. Another issue is "maintenance tracking."

Maintenance tracking is a requirement the state has imposed on the counties. In essence, they are required to inventory all POWTS in their county and record all POWTS activities (POWTS installation, pumping, repair, etc.) for each site. Installers, pumpers and other service providers are required to submit service reports to the county and the county then enters the info into their tracking program. Ultimately we should be able to pull out a full history of the property in regard to the POWTS, which is very useful for inspections and troubleshooting.

The issue with uniformity is that each county uses its own program and has its own requirements for submitting reports. Some counties require digital data and others only accept paper. Some counties are very progressive and efficient and information is available on line. It is very difficult to get historical data from others. Part of the problem with this is the frustration for service providers since we all work in a number of counties, not just one.

Uniformity in plan review is a separate issue. The huge majority of plans are reviewed in several state offices, with the exception of a few counties with agent status who review plans for installation in their own county. The uniformity issue here is that submitters deal with different reviewers with different requirements and opinions. Hence, a plan which may sail smoothly through one office may incur a number of hangups in another office and the approval time may slow significantly.

"Regulators should be making certain that installers have credentials and licenses." The companies "low-balling" bids most likely have unlicensed employees—who are not well trained or knowledgeable—and this is a set-back for the industry.

Getting People Involved

Being successful in getting people involved in the state association's work depends (for the most part) upon personality and approach in communication. Some communication skills are better than others. As an example, following her 1st presentation at conference on POWTS evaluation identifying problems, people approached her to volunteer to work on the problem. Sue reinforces, that the Wisconsin organization is no different than others—there always appears to be the same group of individuals working on the programs and projects. But she believes that with the right tone and treatment, we can light fires under people. She is continually "amazed that people approach her with discussions and follow-up messages from presentations.

A critical issue to be addressed by NOWRA to support the state groups is educating the public—the system owners and users. As an example—this winter when she was conducting a site inspection, she found at the bottom of the pump in a mound system, fabric sheets and condoms; lateral lines were full of the residual plastic pill capsules that passed through the human system. She also believes that the "drug/medicine issue" is a critical topic. As an example, when a cancer patient passes away in a home or hospice situation the remaining drugs require some form of disposal—which should not be placed in the toilet. The Many drugs cause serious problems with POWTS function and incineration appears to be a better disposal alternative." In addition, NOWRA's program for installer certification is highly important to industry members. ■



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State Association Reports and Announcements



➤ COLORADO

What's up with CPOW?

In Colorado, geologic features and prescriptive regulations create numerous challenging conditions for the design and installation of onsite wastewater treatment systems. Some of these conditions include shallow bedrock, steep slopes, shallow groundwater, expansive clays, cold climate, and numerous sites with unsuitable soil for wastewater treatment. New technologies continue to be developed to address these challenging conditions. However, with the allocation of one-tenth of one full-time employee at the state level, Colorado has lacked the necessary state-led leadership in the industry to implement the new technologies needed for new development and failed systems.

Recognizing the lack of unification of those involved in the onsite industry, Colorado Professionals in Onsite Wastewater (CPOW) was created. CPOW is providing a vital role for sharing experiences, ideas, providing educational venues, updating/reforming regulations, and supporting policy that will help improve the future of the onsite industry throughout the state. CPOW is supporting a new bill being introduced to the state legislature that will provide funding for a full-time employee to work with onsite wastewater treatment systems.

CPOW just completed their third annual educational conference series in March. Over 130 people attended the conference, which was held in Grand Junction on the western slope and then again in Golden along the front range of the Rocky Mountains. Conference evaluations and general feedback indicate the conference was a success.

Last year, the CPOW board worked diligently to develop a strategic plan. This year they are working on the implementation of the plan. The immediate focus of the board is to establish CPOW as an information resource for the entire onsite industry in Colorado. CPOW is currently in the process of developing pamphlets, brochures, and presentations for dissemination, and are also assembling educational material to be posted on their web site (www.cpow.us). Web links to educational resources are also being generated that allow easy access for their members.

NOWRA's 15th Annual Conference will be held in Denver in August and CPOW is excited. They consider it to be a privilege to be the hosting state, and a great opportunity to increase interest and participation in the industry in Colorado. While at the conference, please stop by CPOW's booth and say hello to our hosts!

➤ FLORIDA

FOWA's Convention & Buyer's Show, July 27-29

The Florida Onsite Wastewater Association's 2006 Convention & Buyer's Show, the "Main Event" will be highlighted by excellent education and management programs for both the onsite and portable restroom industries, over 130 10' by 10' booths, a pre-convention golf tournament, and entertainment featuring a Honky Tonk Hoedown on Friday night, and a night of fun at Daytona USA, the home of the Daytona 500.

For information on exhibiting or to register for the convention:

www.fowaonsite.com

Bill Carson: bcmancon@aol.com

or call 407-333-9077.

The Florida Onsite Wastewater Association represents 85% of licensed onsite contractors in the state of Florida, and the Portable Restroom Industry in the State of Florida. FOWA is the only non governmental association representing the onsite industry in Florida.

➤ MARYLAND

First Annual Conference

On May 1-2, the Maryland Onsite Wastewater Professionals Association conducted its first annual conference. Industry and agency speakers brought to the attendees a wealth of expertise and information that supports the state in its new program. The conference focused on what policy officials, regulators, planners, home and business owners need to know about the various issues affecting septic systems, onsite technology. It was specifically directed to answering questions about the management of septic systems and the new technologies to be used for the Chesapeake Bay Restoration program.

In providing information about the directions from the federal level, Joyce Hudson, Onsite Program Manager for the EPA

Office of Wastewater Management reinforced the need for management of systems, and how onsite is an integral part of the wastewater infrastructure.

One of the industry's most respected practitioners, Dr. Richard Otis, provided the group with insights about the issues facing the industry in achieving performance with decentralized systems. Other speakers addressed essential topics through presentations and panel discussions.

Nitrogen Removal Technology and Systems were discussed by Ron Suchecki (Enhancing Biological Nutrient Reduction); Pio Lombardo (Holistic Approach to Coastal Watershed Nitrogen management); Mark Lubbers (Addressing Issues of Nitrogen Removal, O&M) and Phil Pedro (Biofilm Kinetics and the Performance of a Single Submerged Attached Growth Bioreactor for Simultaneous Removal of Organics and Nitrogen).

Onsite System Management—Understanding the Framework from home owners to communities to utilities were addressed by Dr. Robert Rubin (What is Management, how it evolved (EPA levels) defining the roles and who's involved); Robert (Regulatory Standards for Utility Managed Decentralized Wastewater); Edward Clerico, P.E., (Defining Utility Approaches to Decentralized Wastewater Management); and an open discussion of case studies moderated by MOWRA member Robert Sheesley.

A new education program entitled, Advanced Onsite Wastewater Treatment Systems Technologies, was given by Anish Jantrania, Ph.D., based on the book co-authored with Dr. Mark Gross.

Exhibitor participation included American Manufacturing, American Water Management, Inc.; AquaPoint, Inc.; Aquarobic International; EcoFlo of Maryland; Freemier and Associates (Bio-Microbics); Hoot Aerobic Systems; Lombardo Associates, Inc.; Onsite Solutions of VA (Delta Environmental); Polylok, Inc. (Zabel Filters); SeptiTech, Inc.; Shafer, Troxell & Howe, Inc.; Virginia Marketing Associates (Zoeller Pumps); VAMAC; and Waterloo BioFilter Systems, Inc.

Operations & Maintenance Service Provider Training Yields New Program Certification

A group of 10 persons participated in MOWPA's 1st O&M Service Provider

Training and certification program, completing a two day course of intensive learning on May 19–20. Graduates of this program included, Gene Preston, Katherine Melton, Greg Swartz, Richard Smith, Charles Jackson, Robert Kerr, Mark Finks, John Koontz. O&M Certified trainers leading the two-day program were Dave Duree, Trapper Davis and Linda Hanifin Bonner. Plans are underway to schedule a 2nd program in the fall.

➤ ONTARIO

Established in 1999, the *Ontario Onsite Wastewater Association (OOWA)* is dedicated to providing a strong Provincial Voice and access to a large network of Onsite Wastewater Professionals throughout Ontario. Our members are represented internationally through membership and active affiliation with the *National Onsite Wastewater Recycling Association (NOWRA)*. The Onsite Wastewater Industry is at the front line of rural development, ensuring the professionalism of the Onsite Wastewater Industry, ensures that all industry organizations will continue to support onsite systems as a *viable permanent wastewater servicing option*.

The *Ontario Onsite Wastewater Association* provides all Ontario wastewater professionals including installers, engineers, contractors, regulators, haulers, manufacturers, designers, and researchers with the opportunity to interact and learn from leading professionals in the Onsite Wastewater Industry. The primary concerns and interests of the Onsite Wastewater Industry are actively represented by Members of the *Ontario Onsite Wastewater Association* through the Board of Directors and the focus committees, which focus on Public Relations, Government Regulations, Research, and Membership Services. Only as a team can we build the profile and recognition throughout Ontario that the Onsite Wastewater Industry deserves.

After a great conference this year in Kitchener, Ontario attended by over 240 industry professionals we have proposed that membership is a prime target for our efforts for the future. Contractors, regulators, suppliers and other industry professionals who want to help grow this industry can contact us at the addresses given at the end of this document.

2006/07 OOWA Board Of Directors

Al Brown (President), Sand Filtration Inc.; **Terry Davidson** (Treasurer, Past President), Rideau Valley Conservation Authority; **John Doner** (Vice-President), Sani Tech Communal Systems Inc.; **Doug Joy** (Secretary, Past President), University of Guelph–ORWC; **Eric Gunnell**, Gunnell Engineering Ltd.; **Kirk Hastings**, Onsite Septic Solutions; **Iggy Ip**, Waterloo Biofilter Systems Inc.; **Bert Knip**, Make-Way Environmental Technologies Inc.; **Philippe Masuy**, Ecoflo Ontario; **Tom Musgrove**, Northern Purification Systems; **Henri Ouellet**, Premier Tech; **Rob Passmore**, Paterson Group Inc.; **Doug Robinson**, Unit Precast (Breslau) Ltd.; **William Seabrook**, Green Valley Environment Inc.; **Robert Thomson**, Valley Sanitation Services Ltd.

➤ WISCONSIN

The period to vote by mail ballot for the 2006 Wisconsin Onsite Wastewater Recycling Association Board of Directors ended on Jan. 31, 2006, and the results are as follows: **President—Sue Schambureck**, Madson Tiling & Excavating (unopposed); **Vice President—Todd Stair**, Herr Environmental (unopposed); **new board members—Mark Finger**, Finger Soil Testing & Consulting, and **Dave LaBott**, Baudhuin Inc.

All of the above will serve for two-year terms. They will be joined on the 2006 WOWRA Board of Directors by Bill Bergh of Geo Tech Soil & Site Evaluation; Steve Johnson of North Cape Tile and Brian McQuestion of Lake Shore Burial Vault, who will each serve through 2007.

Thank you to Harry Butler for his service on the WOWRA board in the past. We thank the current and newly elected board as well. Congratulations to Sue, Todd, Mark and Dave for your election to the 2006 Board of Directors.

In addition to being able to call the WOWRA main office, WOWRA members are encouraged to contact the WOWRA Board of Directors to give input on policy issues or to let them know about problems/concerns that you are having relating to the onsite industry. Board members' contact information is posted elsewhere in this WOWRA newsletter.

➤ YOWA

YOWA an Official NOWRA Affiliate

After years of discussion and best intentions, the Yankee Onsite Wastewater Association (YOWA) has finally achieved reality as an official organization and affiliate of NOWRA. Incorporation papers were signed and filed in late 2005 and the NOWRA state affiliate agreement was signed in April 2006. YOWA is now poised to represent the interests of onsite practitioners in the northeast states of states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Here in the northeast, there are significant legislative, policy and technical issues occurring within all of our states as well as many training needs. Decisions made on these topics affect the economic interests and the future of our industry. YOWA believes that by working together, with a strong and united voice, we can truly make a difference in the development of future programs, events, and legislation affecting the onsite industry in New England.

YOWA has appointed interim officers and a Board of Directors to help lay the foundation of the organization. The Interim Officers are **President—John J. Higgins**, Northeast Environmental Corp.; **Vice-President—Thomas W. Groves**, New England Interstate Water Pollution Control Commission; and **Secretary/Treasurer—Daniel G. Ottenheimer**, Mill River Consulting. Additional Interim Board of Directors include: **George Loomis**, University of Rhode Island; **Mitch Locker**, NH Dept. of Environmental Services; **Russell Martin**, Maine Dept. of Health and Human Services; **Keith Dobie**, F.R. Mahony; **Steve Dix**, Septic-Solutions; and **Bruce Douglas**, Forcier Aldrich and Associates.

A mass mailing for introductory memberships is presently underway. Memberships to YOWA and in turn, NOWRA are being offered in 2006 at a low introductory rate in order to build membership. Plans for 2006 include the development of by-laws, election of officers and board members, formation of committees, and the conducting of training in Vermont and possibly Connecticut before the year end. YOWA will also take a lead in sponsoring the next Northeast Onsite Wastewater Treatment Short Course and Equipment Exhibition to be held in March 2008 in Groton, CT.

For information on YOWA, please contact the NOWRA office at 800-966-2942. ■

NOWRA 2006 Annual Education Conference

August 28-31, 2006 • Denver, Colorado



NOWRA's 2006 Technical Education Conference and Exposition take place in the beautiful city of Denver, August 28-31. Combine a family vacation with an opportunity for professional education and learning!

If you are committed to achieving water quality results with decentralized systems, NOWRA's 15th annual conference offers an educational and training experience that you can't get anywhere else. It's also the largest and most comprehensive exposition of onsite wastewater treatment products in the United States. Whether you're a regulator, designer, or service provider, or otherwise involved in the onsite wastewater industry, there's no better opportunity to get the information you need all in one place.

Technical education sessions and exhibits provide updates from industry leaders about the latest technologies and research, focusing on core topics.

- Soils and watershed management strategies and applications
- Assessment tools or approaches to broader integrated evaluations
- Innovative systems, technologies, and solutions
- Education strategies and applications
- System planning, performance and evaluations
- Watershed management strategies and applications
- Regulations and the regulatory framework
- And of course, NOWRA's premier program, "The Basics of Onsite Systems – A to Z"

In conjunction with the conference, the Experiential Training Program for onsite industry practitioners provides a unique education forum for professionals assisting them in solving problems and learning of new installation and maintenance methods. Hosted by the Colorado Professionals in Onsite Wastewater (CPOW), this year's program includes a tour of the Colorado School of Mines, site tours to alternative systems, and a session about watertight tanks.

Participants attending the technical education sessions and the Experiential Training Program can receive continuing

education units (CEU) to support their ongoing professional development.

The exposition features North America's leading manufacturers and distributors of onsite wastewater treatment products and services. It's a unique opportunity to get your questions answered and see demonstrations of cutting-edge technologies and services.

All events will take place at the Adam's Mark Denver Hotel, conveniently located near Denver International Airport.

Make this Conference a Special Visit

August temperatures will be in the 80s with very low humidity. You or your family will find numerous recreational opportunities within an hour or two of downtown Denver. Any of these trips can be accomplished in a day, bringing you back to the city for an exciting evening.

- Forty-two miles west of Denver is the Victorian village of Georgetown, with more than 200 restored buildings. The Georgetown Loop is a narrow-gauge steam locomotive that carries passengers up a narrow valley.
- Summit County boasts four major resorts—Lake Dillon, Breckenridge, Copper Mountain, Keystone and Frisco. In these areas are all forms of outdoor recreation, including whitewater rafting, hiking, hot air ballooning, golf, and horseback riding.
- Vail/Beaver Creek is an internationally known ski village that is even more delightful in summer, when the pedestrian-friendly streets are lined with outdoor cafes, flower baskets, and numerous cultural events.
- And don't forget "Pikes Peak," which offers a scenic 24-mile train ride through the heart of the Royal Gorge Canyon.

NOWRA 2006 Conference Program Activities Overview

Located at the base of the Rocky Mountains and founded in the 1800s as a mining camp, Denver is one of America's most beautiful cities and youngest cities! Denver has one of the largest downtown areas in the United States – a bustling area centered in a mile-long pedestrian promenade lined with outdoor cafes and mountain views—just outside the doors of The Adam's Mark Hotel. Denver is also home to three new sports complexes, hundreds of restaurants, a restored historic district, a collection of museums and a large variety of galleries and shops. Make plans for a mini-vacation before or after the conference, or find just the right way to enjoy the best that Denver and its surrounding area have to offer. You won't be sorry!

PRE-CONFERENCE EVENTS & TOURS

NOWRA and the Colorado Professionals in Onsite Wastewater have put together several preconference events and tours that will allow you and your family to experience the beautiful and breath-taking state of Colorado!

Saturday, August 26, 2006

- **Golf Outing** (See separate article)
7:15am departure from Adam's Mark (transportation not provided)
8:00 am tee time – Includes many amenities
- **Whitewater Rafting**
NOWRA is holding reservations for a whitewater rafting trip on the Arkansas River at Royal Gorge. *Get your name on the list early.*
www.clearcreekrrafting.com
6:00 am – departure from Adam's Mark (transportation not provided)
9:00 am – rafting at Royal Gorge on the Arkansas River
1:00 pm – depart River for Denver
3:30 pm – estimated arrival back in Denver
Cost: \$46 per person (minimum age 15 – due to changes in water flows and conditions, rapid classifications and minimum ages may vary.)

Sunday, August 27, 2006

- **Mountain Train Adventure**
www.skitrain.com/summer.html
7:45 am – depart for train station (transportation not provided —in walking distance)
8:30 am – board train
9:00 am – train departs station
1:30 pm – train arrives in Winter Park
3:00 pm – train departs Winter Park
5:30 pm – train arrives back in Denver
Cost: (coach travel)
\$44 per person

Wednesday, August 30, 2006

- **Colorado Rockies vs. New York Mets at Coors Field**
www.colorado.rockies.mlb.com
6:15 pm – depart hotel (transportation not provided)
7:05 pm – opening pitch
After the game return to the hotel via city shuttle bus or stroll back along the 16th Street Pedestrian Mall.
Cost: \$25 per person

SO, SO MUCH MORE TO SEE

Plan to arrive in Denver a few days early to take advantage of all Denver and the surrounding area have to offer you and your family. Lots of culture, history, entertainment, and activities are waiting for you in this great state. There is something for everyone!

More information about Denver and its surrounding area can be found on these websites.

- www.denver.org—Denver Metro Convention & Visitors Bureau's website
- www.rockymountainnews.com & www.denverpost.com—Both local newspapers offer online versions of their daily editions.
- www.denvercolorado.com—The internet information source for Denver
- www.colorado.com— Provides an updated schedule of state-wide events, attractions, and activities.

In addition, the Concierge at the Adam's Mark Denver will be glad to assist you with tour and sightseeing arrangements, either day trips out of town or tours around the city.

Within walking distance from the Adam's Mark Hotel

- **16th Street Mall —A Mile-Long Promenade**—The heart of Denver is the 16th Street Mall. Just steps outside the Adam's Mark Denver, the mall is a colorful pedestrian promenade lined with outside cafes, shops, fountains, and entertainment. Hop on one of the free and frequent shuttle busses that connect Lower Downtown with the Civic Center/State Capitol areas.
- **Colorado History Museum**—The Colorado History Museum offers a series of dioramas and exhibits that trace the colorful history of the Indians, explorers, gold miners, cowboys and pioneers that have called Colorado home. Exhibits include an outstanding collection of William Henry Jackson photos and a large diorama of Denver as it appeared in 1860. Call for information on special exhibits. 303/886-3670.
- **The Molly Brown House**—The Molly Brown House honors "Unsinkable Molly Brown," the heroine of the Titanic disaster with mementos from her life preserved in her beautiful home on Capitol Hill. Molly was one of the most colorful characters to come from Denver's gold rush period. While sailing on the Titanic, she took command of a lifeboat and was credited with putting down a panic. Her life story was the inspiration for the hit musical and film, "Unsinkable Molly Brown." 303/832-4092
- **U.S. Mint**—The U.S. Mint is where over five billion coins are made each year and there are free 20-minute tours on weekdays. It is also the second largest storehouse of gold bullion in the U.S. after Fort Knox. The gift shop has many unique coins not available anywhere else, and there is a small museum on the history of money. 303/844 3582.

15 Minutes from Downtown Denver

- **Denver Children's Museum**—The Children's Museum of Denver is a unique participatory museum for children and families to experience hands-on, interactive exhibits and activities. Children can learn to ski on KidSlope, shoot baskets, compare measurements in SizeWise, sample the latest in computer software in CompuLab, and shop in the grocery store. 303/433-7444.



- **Denver Botanic Gardens**—The Denver Botanic Gardens has a large conservatory, an alpine garden with rare tiny flowers, a Japanese tea garden, as well as a water garden with hundreds of water lilies that bloom in late summer. It is just one of 506 public gardens in Denver where over 240,000 flowers are planted each year.

Rooted a mile high, Denver Botanic Gardens has been a favorite Denver destination for 53 years. With more than 32,000 plants from such far-away places as Australia, Africa and the Himalayas, Denver Botanic Gardens is recognized as one of the top five botanical gardens in the United States. Art and science unite in the Gardens' spectacular 23-acre urban oasis, offering an unforgettable artistic garden experience for the whole family, as well as a living laboratory for education and plant conservation programs. 720/865-3500. www.botanicalgardens.org.

- **The Denver Zoo**—The Denver Zoo is consistently rated as one of the top 10 in America with 3,500 animals in lovely spreading grounds in City Park. "Tropical Discovery," is a 1.5-acre rainforest under glass in which visitors feel the sensation of walking through a jungle teeming with wildlife. Other highlights of the Zoo include "Northern Shores" where you can watch polar bears swim underwater and Primate Panorama, where visitors can get as close as 10 feet to over 29 species of monkeys. The Zoo celebrated its 100th anniversary in 1996. 303/376-4800. www.denverzoo.org

- **Six Flags Elitch Gardens Theme Park**—Six Flags Elitch Gardens Theme Park is a hundred-year-old theme park known for its European atmosphere, elaborate floral gardens, and thrill rides. In 1995, Elitch Gardens moved to an expanded location in downtown Denver along the South Platte River with all new rides, gardens, lagoons, restaurants and amusements. 303-595-4386. www.sixflags.com

30 Minutes from Downtown Denver

- **Coors Brewery**—Located in Golden, CO, this plant is the largest single brewery in the world! The Coors Brewery offers free 40-minute tours which take you through the malting, brewing and packaging processes of this facility. 303/277-2337. www.coors.com
- **Butterfly Pavilion and Insect Center**—Just north of Denver lies this fascinating tropical conservatory home to over 1,200 free-flying butterflies.

The insect center contains exotic specimens from all over the world as local varieties, with some available for touching and up-close examinations. Sure to fascinate the kids, are the giant robotic insects and other interactive exhibits. 303/469-5441. www.butterflies.org.

Special Events

Events taking place in the Greater Denver Area prior to and during Conference Week:

- **Rocky Mountain Balloon Festival**—August 25-27, Chatfield State Park, Denver. www.rockymountainballoonfestival.com
- **Red Rocks Amphitheatre**—schedule of performances available end of April at www.redrocksonline.com
- **Colorado State Fair**—August 25– September 4, Pueblo, CO
- **Colorado Rockies Major League Baseball Team**
www.colorado.rockies.mlb.com
August 27, 1:05pm vs. San Diego Padres at Coors Field
August 29, 7:05pm vs. New York Mets at Coors Field
August 30, 7:05pm vs. New York Mets at Coors Field
August 31, 7:05pm vs. New York Mets at Coors Field

Ground Transportation

SuperShuttle® Denver offers convenient scheduled airport shuttle service to/from Denver International Airport and all downtown hotels. Reservations area not required.

Upon arrival at the Airport, take the train from your gate area to the Main Terminal, proceed up the escalators to Level 5/Baggage claim. Claim your luggage, and then proceed directly to the SuperShuttle® Ticket Counter located in the middle of the terminal under the Ground Transportation signs. (Counter is open from 7 am to 11 pm daily.) Purchase a ticket and Guest Service Agents will direct you to the appropriate shuttle loading area on Island 3 of either the East or West side of the Terminal.

Approximate Fares from the Airport to The Adam's Mark Hotel is \$19 one way/per person or \$34 round trip/per person (subject to change). You may make reservations in advance by going to www.supershuttle.com.

SPECIAL CONFERENCE SESSION NOWRA/WATER QUALITY ASSOCIATION WATER SOFTENER TASK FORCE

Wednesday, August 30, 2006 • 1:15 – 3:15 p.m.
Room 11 – Adam's Mark Hotel

Dr. Matthew Byers, Task Force Co-chair will provide the introduction and review of the work of the group and of the issues occurring in the investigation.

Dr. Joseph Harrison, from the Water Quality Association will be the featured speaker, and will provide information about softeners and water conditioning equipment. He will also describe the types of softeners, how they work and what a designer can expect in terms of those units affecting the water.

Following these presentations, an "OPEN FORUM" is scheduled. This session provides attendees with the opportunity to discuss and address issues they have encountered on systems regarding failures. The task force's progress and its next steps in this investigated will also be presented during this open forum.

NOWRA MODEL PERFORMANCE SESSION

Presentation of NOWRA Actions

Wednesday, August 30, 2006 • 8 a.m. to 12 noon
Room 10 – Adam's Mark Hotel

This session convenes the long-awaited presentation of the NOWRA Model Code.

During the past year, a series of peer review group meetings have occurred in response to questions raised about the documents. This session answers those questions and presents the recommendations of the NOWRA Board regarding future direction and use. In addition, this session will launch the first meeting to educate regulators about the use of a model code.



2006 Conference Program Features

Conference Keynote Speaker Sets the Tone for the Industry's Work

Bryan W. Brooks, Ph.D.

*Center for Reservoir and Aquatic Systems Research
Baylor University, Waco TX*

NOWRA is honored to welcome Dr. Bryan Brooks to its conference and to hear his insights about the industry issues. The topic of his message is, "*Emerging Water Quality Issues for Onsite Systems.*" Dr. Brooks is affiliated with the Center for Reservoir and Aquatic Systems Research and Baylor Wastewater Research Program at Baylor University, Waco, Texas where he has served since 2002. He holds a Ph.D. in Environmental Science from the University of North Texas, and a M.S. in Biological Sciences and a B.S. in Biological Sciences from the University of Mississippi.



His interdisciplinary research interests include understanding how anthropogenic activities and stressors influence multiple levels of biological organization, particularly in aquatic ecosystems. Students working in his group are engaged in interdisciplinary projects that often incorporate laboratory and field studies in water quality, environmental toxicology and risk assessment, and applied aquatic ecology. Examples of current studies include effluent water quality from on-site and municipal wastewater treatment plants, stream and reservoir water quality studies in rapidly urbanizing areas Texas, and the ability of various wastewater treatment technologies and wetlands to remove emerging contaminants.

Dr. Brooks has published numerous manuscripts and book chapters on the effects of emerging contaminants on aquatic organisms, and water quality issues in effluent-dominated ecosystems, often found in the south central and southwestern U.S. Media such as CNN, NPR Science Friday, the Washington Post and Field and Stream has covered his research in these areas. Dr. Brooks' research has been supported by funded by the U.S. Environmental Protection Agency, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, Altria Foundation, 3M Foundation, WateReuse Foundation, the U.S. Army, and private industry.

He currently serves as Director of the Baylor Eco-toxicology Research Laboratory, Past President of the South Central Society of Environmental Toxicology and Chemistry, President of the Gulf Coast Society of Toxicology, Chair of the Freshwater and Marine Sciences section of the Texas Academy of Sciences, and President Elect of the Texas River and Reservoir Management Society. He currently serves as the academic representative from North America on the Steering Committee of the Society of Environmental Toxicology and Chemistry's (SETAC) Pharmaceuticals Advisory Group, and the academic representative from the United States on the Steering Committee for International Workshop on Veterinary Medicines.

SPECIAL PRE-CONFERENCE WORKSHOP

Watershed-Scale Modeling of OWS Pollutants

Short Course at Colorado School of Mines

Sunday, August 27, 2006

Taught by: Professor John McCray and Dr. Mengistu Geza

jmccray@mines.edu

Hydrologic Science and Engineering Program, Environmental Science and Engineering Division, Colorado School of Mines

This 1-day course focuses on watershed-scale fate and transport of pollutants from Onsite Wastewater Systems (OWS). Pollutants considered may include nitrogen, phosphorus, and emerging organic contaminants (e.g., pharmaceuticals). This workshop is not geared toward expert modelers, although such persons are welcome. Rather, the information is designed for regulators, planners, and scientists or engineers who wish to become familiar with the benefits of using a watershed model for OWS-related decision making or watershed protection. An environmental engineering or water-science background, or equivalent experience, is useful, as we will not rigorously teach the hydrology, chemistry, and biology of contaminant transport. Nonetheless, environmental planners and policy makers with minimal science background would also benefit from the course by learning what types of information can be gained from models.

Course Instructors

Dr. John McCray, professor at of Environmental Science and Engineering at Colorado School of Mines, is the director of the Hydrologic Science and Engineering Graduate Program. He earned a B.S. in Electrical Engineering at West Virginia University, an M.S. in Environmental Engineering at Clemson, and a PhD in Hydrology at the University of Arizona. Dr. McCray's research involves laboratory, field, and modeling studies of water and contaminant movement in the hydrologic environment, from site to watershed scales.

Dr. Mengistu Geza is a post doc at Colorado School of Mines. He earned a B.S. in Agricultural Engineering at Alemaya University in Ethiopia, an M.S. in Water Resources Engineering at University of Karlsruhe in Germany, and a PhD in Environment and Water Resources at Oklahoma State University. His research interests involve sediment and pollutant transport and hydrologic and water-quality modeling.

Course Information

The course will be taught through the International Ground Water modeling Center at Colorado School of Mines. CEU's will be awarded. Cost of the course is \$495 for early registration or \$595 for registration after July 15, 2005. Enrollment is limited to 15 people, so early registration is recommended.

To register, contact Sophia Seo, Associate Director. Registration is through the International Groundwater Modeling Center.

NOWRA Post-Conference Field Education Sessions

Thursday, August 31, 2006 • Busses leave from the Hotel Lobby at 7:30 a.m. and return at 4:00 p.m. Everyone will visit all three locations; lunch is provided.



LOCATION #1

COLORADO SCHOOL OF MINES—Rocky Mountain Onsite and Small Flows Research Program

The Rocky Mountain Onsite and Small Flows Research Program was initiated at the Colorado School of Mines (CSM) to advance the science and engineering of treatment technologies and enhance the long-term viability of decentralized approaches to water infrastructure in Colorado, the U.S. and abroad. The overall goal of the Program is to enhance the quantitative understanding of processes important to system design and performance and develop decision-support tools for applications involving individual systems all the way up to those involving large developments and watershed scale situations.

The Program involves (1) fundamental and applied lab studies, (2) controlled field testing and evaluation of systems, (3) field monitoring of systems and environmental settings, (4) analytical & numerical modeling, and (5) educational activities. As part of this Small Flows Program, the Mines Park Water Reclamation Test Site was established in 2001 to enable field testing and evaluation of new and emerging technologies for decentralized wastewater reclamation and beneficial reuse. The Mines Park Test Site is located on the CSM campus adjacent to the Mines Park student-housing complex near the corner of Highway 6 and 19th Street in the City of Golden, Colorado. At the site, wastewater from a multifamily housing complex is intercepted and managed onsite using low profile pilot-scale unit operations and in-ground test cells with associated sensors and monitoring devices.

Ongoing and pending research includes The primary technology elements being investigated at the site currently include: In situ porous media biofilters (PMBs) for natural systems renovation based on continuous and intermittent gravity dosing, uniform pressurized distribution, and/or shallow subsurface drip irrigation approaches, Advanced treatment processes comprised of ex situ engineered porous media biofilters including peat, sand, textile, and/or foam media, advanced treatment processes including membrane bioreactors and packed bed reactors including novel sorbents, and Pathogen removal in PMBs and by ultraviolet light irradiation for disinfection. Program supporters and sponsors have included CSM, consulting engineering firms and contractors, private industry vendors, Colorado government, and government agencies. Primary funding to date has been acquired through competitive grants and contracts from the U.S. Environmental Protection Agency National Decentralized Water Resources Capacity Development Project, U.S. Geological Survey National Institutes of Water Research, along with contracts and philanthropic grants from private industry.



LOCATION #2

FRONT RANGE PRECAST CONCRETE, INC.—Automated Production of Watertight Concrete Tanks.

Front Range Precast Concrete Inc. (FRPC) has manufactured concrete tanks for use in the onsite wastewater industry for the past 59 years. During a NOWRA conference in 1985 owner/president Doug Jatcko became aware of a growing concern regarding the watertight integrity of concrete tanks. This motivated Front Range Precast

Concrete Inc. to reinvent their manufacturing process with the goal of repeatedly producing watertight concrete tanks with a built-in methodology for testing the watertight integrity during the manufacturing process.

The HALO® technology was born. The HALO® direct control robot allows a single operator to manipulate forms, strip tanks, move inventory, and load trucks efficiently and safely. This greatly reduces necessary manpower, increases levels of quality assurance and control, and allows precast concrete manufacturers to effectively concentrate on mass production.

FRPC has been serving the onsite wastewater industry since 1947, and their commitment to protecting the environment from groundwater contamination is the foundation of their business.



LOCATION #3

LOCAL ONSITE INSTALLATIONS

Colorado's geology and environmental and human health regulations provide unique challenges for permitting, design, and installation of onsite wastewater treatment systems. Within close proximity to Denver, two onsite installations will be identified. Visiting these locations will benefit those from inside and outside Colorado alike by providing a hands-on installation experience in the field. Local regulators, manufacturers, and installers will be present at all sites.

CIDWT Onsite/Decentralized Wastewater Glossary Review Workshop

NOWRA Annual Conference • Adams Mark Hotel • Denver, CO • Thursday August 31, 2006

The Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT) is in the process of developing an Onsite/Decentralized Wastewater Glossary. The goal of the project is to improve communication across the industry by standardizing wastewater terminology. Phase I of the review process has officially begun and will conclude with a review workshop scheduled for Thursday August 31, 2006 in conjunction with the NOWRA Annual Education Conference in Denver, CO. Representatives of manufacturing, regulatory and other professional organizations have agreed to compile review comments from their membership. If they desire, individuals may also submit their own review. Comments received prior to August 11, 2006 will be discussed during this workshop. Other comments will be discussed as time permits.

WHO should attend: All industry sectors are encouraged to attend, including, but not limited to:

- Regulatory
- Soil Science
- Installation
- Engineering
- O&M Service
- Manufacturing
- System Design
- Land Use Planning
- Education/Training

WHY this program is important

The completed Glossary will improve communication among all industry sectors by standardizing terminology.

HOW your attendance will make a difference:

It is critical to hear from all stakeholders as early as possible in the short 18-month timeline for this project

WHAT you will gain from attending this session:

This is an opportunity for individuals to interact with colleagues and share their experience and expertise relative to the language we all use every day in our work.

WHEN AND WHERE: The workshop is currently scheduled for Thursday, August 31 in Room 11 from 8:00 AM to 4:00 PM. Please consult the final Conference program for any changes.

HOW to register: Although there is no cost to attend the workshop, pre-registration is required and important.

To pre-register, go to <http://www.onsiteconsortium.org/>, click on the link to the pre-registration form, print it out, and enter your information. Completed forms should be **FAXED NO LATER THAN August 11 to:**

Susan Levien
Texas A&M University
Biological and Agricultural Engineering
Department
Texas Cooperative Extension
Phone 979-845-7451
Fax 979-862-3442

NOTE: The Glossary and reviewing instructions are available at <http://www.onsiteconsortium.org/>.

SAVE THE DATES



NOWRA 2nd Annual Installer Academy

December 4–6, 2006

The Riviera Hotel
Las Vegas, NV

Visit nowra website for call for papers and additional details

NOWRA 16th Annual Technical Education Conference, Exposition, and International Program

March 10–15, 2007

Baltimore Marriott Waterfront Hotel
Baltimore, MD

2006 Conference Program Schedule



SUNDAY, AUGUST 27, 2006 Pre-Conference Workshop

Start	Finish	Topic	Location	Speaker
8:00 AM	5:00 PM	Watershed Modeling	Colorado School of Mines	CSM Faculty

MONDAY, AUGUST 28, 2006

Conference Opening - General Session -- Monday Morning - Grand Ballroom - Tower Bldg

Start	Finish	Topic	Speaker
8:00 AM	8:30 AM	<i>Welcome and Opening Message</i>	Raymond Peat NOWRA President
8:30 AM	9:45 AM	<i>Keynote Message</i> <i>Emerging Water Quality Issues for Onsite Systems</i>	Dr. Bryan Brooks, Baylor University
9:45 AM	10:00 AM	Exposition Opening Ceremonies	Jerry Stonebridge NOWRA President Elect
10:00 AM	12:00 PM	Exposition Opens - No Technical Sessions - Plaza Ballroom	
12:00 PM	2:00 PM	NOWRA ANNUAL AWARDS LUNCHEON - Grand Ballroom	

Technical Sessions Monday Afternoon - Plaza Building

Track Number	I	II	III	IV	V	
Track Name	Basics of Onsite Systems - A to Z	Education	Soils	Assessment Tools	Operation and Maintenance	
Start	Finish	Room 14	Room 15	Room 16	Room 17	Room 11
2:00 PM	2:45 PM	History of Onsite Systems Mary Margaret Minnis	<i>Privatization Case Study: Massachusetts' Training and Certification Program</i> , Tom Groves	<i>Examination of Microbial Characteristics of the Wastewater-Induced Soil Biozone</i> , Jill Tomaras	<i>Models for Assessment of Nitrogen Removal in Groundwater</i> , Kirkley Heatwole	<i>Onsite Wastewater Treatment and Water Reuse in Japan</i> Linda Gaulke
2:45 PM	3:30 PM	Biochemistry & Wastewater Characteristics Jan Hygnstrom	<i>Educational Tools to Advance Onsite Management in Coastal South Carolina</i> , Lisa Hajjar	<i>Genesis and Effects of Pore Filling Agents That Accumulate</i> James McKinley	<i>Using a Web-Based Database to Track Systems in MA</i> , Susan Rask	<i>Viable Business Models for Decentralized Wastewater Treatment</i> , Valerie Nelson
3:30 PM	4:15 PM	Soils: Part 1 Randall Miles	<i>Small Community Wastewater Treatment Assistance in SE Minnesota</i> , Doug Malchow	<i>Soil Morphology and Water Table Relationship</i> David Lindbo	<i>Visual/Olfactory Assessment of a Dissolved Oxygen in ATUs to Indicate Performance</i> , Paul Rosile	<i>Installation & Operational Problems with Alternative Treatment Systems</i> Steven Corr
4:15 PM	5:00 PM	Soils: Part 2 Randall Miles	<i>Speaking the Same Language: A Glossary for the Onsite/Decentralized Industry</i> , Nancy Deal	<i>Lateral Movement of Water in the Capillary Fringe under Drainfield</i> Aziz Amoozegar	<i>State and National Testing Field Performance Programs for Advanced Systems</i> , Adriana Greco	<i>Forcing Operating Permits on Unsuspecting Onsite Owners</i> , Bob Feinbaum
5:00 PM	7:00 PM	Opening Reception & Exposition - Plaza Ballroom				

TUESDAY, AUGUST 29, 2006

Track Number	VI	VII	VIII	IX	X	
Track Name	Basics of Onsite Systems - A to Z	Big Picture Decentralized Issues	System Performance Evaluations	Regulations	Innovative Systems	
Start	Finish	Room 14	Room 15	Room 17	Room 11	
8:00 AM	8:45 AM	Tanks: Part 1 Nancy Deal	<i>How to Remove Barriers to Use of Decentralized Wastewater Technologies & Management</i> , Carl Etnier	<i>Effectiveness of Johkasou Systems in Treatment of Domestic Wastewater</i> , Toshiro Otowa	<i>A Statewide Survey and Evaluation of the Onsite Wastewater in Colorado</i> , Brian Sheffe	<i>Phosphorus Removal for Decentralized Applications</i> , Remy Newcombe
8:45 AM	9:30 AM	Tanks: Part 2 Nancy Deal	<i>EPA's Decentralized Wastewater Management Handbook</i> , Joyce Hudson	<i>Field Evaluation of Subsurface Wastewater Drip Systems: Purification & Biology</i> Jill Tomaras	<i>Implementation Plan for a Model Performance Code for the State of Colorado</i> Jody Erwin	<i>Available Electron Donors and a Non-Flammable Carbon Source for Nitrogen Removal</i> , Samuel Ledwell
9:30 AM	10:30 AM	Break - Exposition Hall Open All Day for Public: Contractors, Realtors, Builders				
10:30 AM	11:15 AM	Water Movement David Gustafson	<i>Research Needs of Decentralized Water Infrastructure</i> , Carl Etnier	<i>Effects of Applied Wastewater Quality on Soil Treatment of Effluent</i> , Charlotte Dimick	<i>Passing Sewage Legislation in Ohio - A Local Perspective</i> Rick Novickis	<i>The HUBAR Membrane Bioreactor System</i> , Sandra Schuler
11:15 AM	12:00 PM	Soil Treatment David Gustafson	<i>How Can We Afford Performance?!</i> , Dick Otis	<i>Performance Between Three Types of Subsurface Wastewater Systems Using Hydrus-2D</i> , William Janna	<i>Quality Assurance Reviews of North Carolina's Local On-Site Programs</i> Kae Arrington	<i>Occurrence and Fate of Contaminants During Onsite Treatment</i> Kathleen DeJohn
12:00 PM	1:15 PM	Lunch Available in Exposition - Plaza Ballroom				
1:15 PM	2:00 PM	Media Filters James Converse	<i>Critical Review of Raw Onsite Wastewater: Composition, Sources, and Issues</i> , Nathan Rothe	<i>Performance of RSF and Constructed Wetland System in Anne Arundel County, MD</i> , Pio Lombardo	<i>Lessons Learned from Charles City County, VA Project</i> Anish Jantrania	<i>Toxicity and Water Quality of Effluent from 3 Different Onsite Systems</i> Samuel Rodriguez

Tuesday schedule continued on page 32

2006 Conference Program Schedule (continued)

TUESDAY, AUGUST 29, 2006 (continued)							
2:00 PM	2:45 PM	Advanced Treatment Units James Converse	Panel Discussion A More Holistic Watershed View on Nitrogen	Geotextile Sand Filter Performance Testing at MASSTC , Steve Dix	How the Certified Installer Credential Could Work for You , Christl Pokorney	In-Situ Denitrification Using Aerobic Bacterial Generators, Dan Wickham	
2:45 PM	3:30 PM	Treatment Technology: Gravity Distribution James Converse		What Tracers Can Tell About Effluent Transport To and In Groundwater Eberhard Roeder	Comparative Study on State Septic System Regulatory Agencies Protecting Ground Water, Dan Yates	Performance of Wastewater and Groundwater Nitrogen Removal, Pio Lombardo	
3:30 PM	4:15 PM	Treatment Technology: Pressure Distribution James Converse		Chemical Influences on Septic System Soil Failure Mary Gayman		Innovative MN Camp Ground Design Eric Blasing	
4:15 PM	5:00 PM	Pumps and Controls: Part I Mark Gross		Reducing Onsite Wastewater Treatment System Failures Kenneth Wright		Square Tank Surface Aerators - A Method to Save Energy, Achanta Rao	
5:00 PM	6:30 PM	Networking Reception in Exposition Hall - Plaza Ballroom					

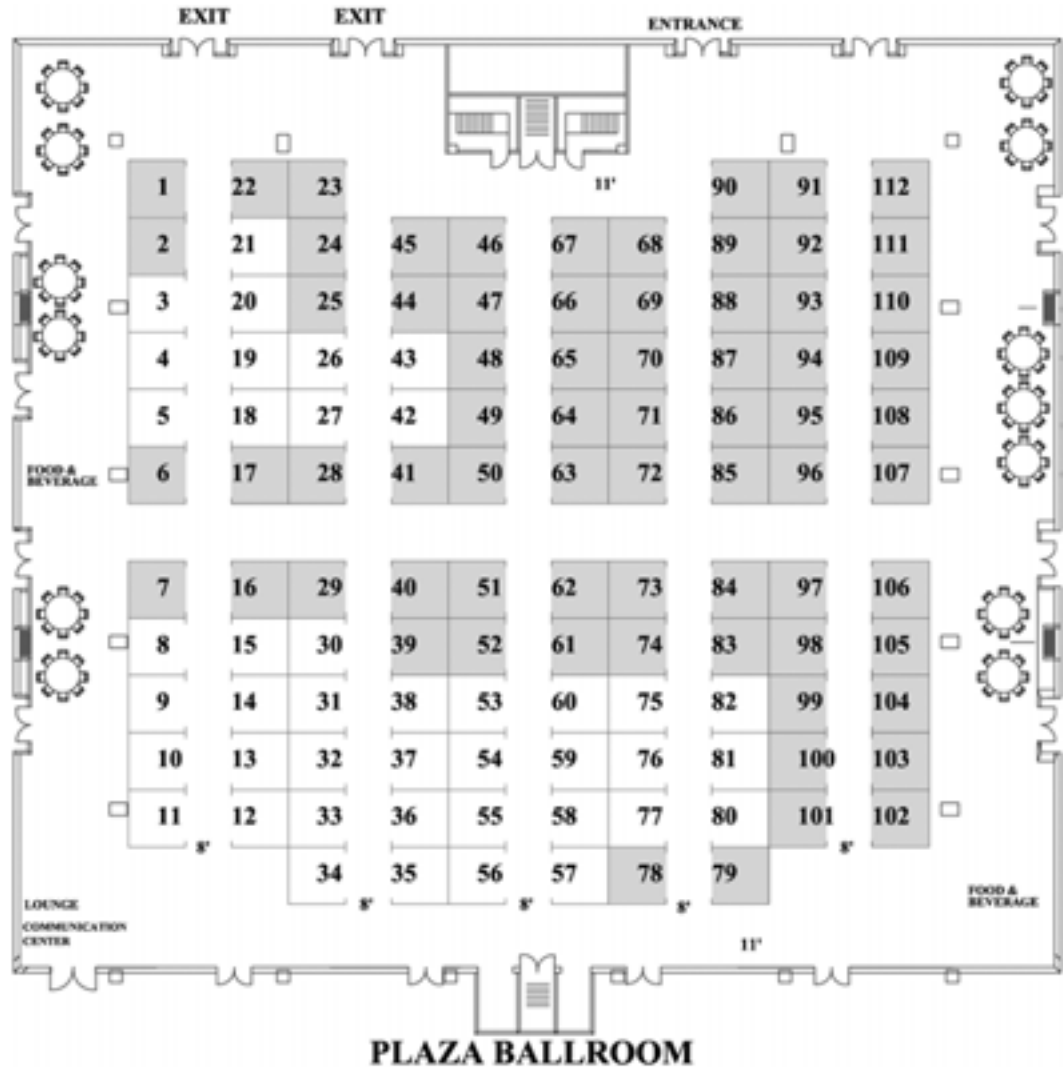
WEDNESDAY, AUGUST 30, 2006												
Track Number	XI		XII		XIII		XIV		XV		XVI	
Track Name	Basics of Onsite Systems - A to Z		Watershed Management		Design		Innovative Systems		Planning AM Water Softener PM		NOWRA Performance Code Update	
Start	Finish	Room 14	Room 15	Room 16	Room 17	Room 11	Room 10					
8:00 AM	8:45 AM	Pumps and Controls: Part II Mark Gross	Integrated Water Quality Management Feasibility Study in a Coastal Community, Bruce Douglas	Performance of Treatment Units and Biozone Formation in Soil Kathryn Lowe	Total Nitrogen Removal in a Single Submerged Attached Growth Bioreactor , Philip Pedros	Financial Planning for Decentralized Wastewater Systems , Ryan Brandt	NOWRA Performance Code Session I					
8:45 AM	9:30 AM	Construction Principles: Part I David Gustafson	Decentralized Wastewater Treatment and the Chesapeake Bay Initiative, Fred Gaines	Geotextile Sand Filter System Design and Construction in Severe Colorado Soils , Steve Dix	Enhancing Biological Nutrient Reduction in Advanced Treatment Systems, Ronald Suchecki	Water Usage at Coastal Communities - Are Onsite Systems Adequately Designed , Gerard Curran	NOWRA Performance Code Session II					
9:30 AM	10:30 AM	Break										
10:30 AM	11:15 AM	Construction Principles: Part II David Gustafson	USEPA's New Guidance on Watershed-Based Plans for Protection and Restoration, Barry Tinning	Structural Considerations for Buried Polyethylene Vessels - Septic Tank Installation, Joseph Brown	Evaluation of a Subsurface- Flow Constructed Wetland for Wastewater Treatment , Pablo Davila	MN Indian Tribes and Bands - Onsite Treatment and Management , Craig Gilbertson	NOWRA Performance Code Session III					
11:15 AM	12:00 PM	Operations & Maintenance: Part I Bruce Lesikar	Using an Inverse Numerical Model to Estimate Biozone Hydraulic Conductivity , John McCray	Effect of Infiltrative Architecture on Performance with STE , Kathryn Lowe	Methods for Removing Sludge From Subsurface Flow Constructed Wetlands , Les Behrends	Northwest Michigan Onsite Wastewater Task Force , William Crawford	NOWRA Performance Code Session IV					
12:00 PM	1:15 PM	Lunch Available in Exposition Hall - Plaza Ballroom - Closes at 1:00										
1:15 PM	2:00 PM	Operations & Maintenance: Part II Bruce Lesikar	Integrated Watershed Management and Decentralized Approaches, Valerie Nelson	Septic Tank Performance of Minnesota Cluster Systems , Sara Christopherson	Performance of Chamber Systems Compared to Gravel Systems in North Carolina , Robert Uebler	Water Science Symposium Update, Matt Byers and Jim Converse						
2:00 PM	2:45 PM		Pollution Reduction Trading in the Deschutes River Watershed, Oregon , Barbara Rich	Primary Treatment in Onsite Systems: Parameters of Importance , Victor D'Amato	A New Fixed-Film Treatment Media for Decentralized Wastewater Systems , Kevin Sherman							
2:45 PM	3:15 PM		Decentralized Wastewater Management Plan for Nags Head , Amy Macrellis	Using One D Columns to Evaluate Hydraulic Performance D. Ryan Walsh	A Temporary Drip Dispersal Systems while Restoring a Failed Drainfield John Buchanan							
3:15 PM	4:30 PM			Occurrence and Fate of Wastewater Contaminants During Onsite Treatment , Kathleen DeJohn								
THURSDAY, AUGUST 31, 2006												
Topic		Meeting Location										
7:30 AM	4:00 PM	Onsite Systems Field Tour										
8:00 AM	4:00 PM	Consortium Glossary Project										
8:00 AM	4:00 PM											

2006 Conference Exhibitors

As of May 20, 2006



Booth #	Exhibitor
45	Adeus Technologies, LLC
1,2	Advanced Drainage Systems
100 & 101	American Manufacturing Company, Inc.
107	Aquapoint Inc.
86	Ayres Associates
88,89,90	Bio-Microbics, Inc.
96	Bord Na Mona - puraflo
7	Clean Up America, Inc.
79	Cole Publishing, Inc.
25	Concrete Sealants, Inc.
23,24	Consolidated Treatment Systems, Inc.
50	Containment Solutions, Inc.
104	Cromaglass Corp.
109,110, 111,112	Delta Environmental Products, a division of Pentair Water
102	Ecological Tanks, Inc.
93	F. E. Myers, a division of Pentair Water
65	F. R. Mahony & Associates, Inc.
39,40	FRALO Plastech
63	Front Range Precast Concrete
71,72	Geoflow, Inc.
67,68	Hoot Aerobic Systems, Inc.
92	Hydromatic Pumps, a division of Pentair Water
46,47	Infiltrator Systems, Inc.
64	ITT Industries/Goulds Pumps/Marlow Pumps
16,29	Jet Inc.
103	JNM Technologies, Inc.
66	Little Giant Pump Company
51,52	Netafim USA
22	Norweco Inc.



Booth #	Exhibitor
98,99	Norwesco, Inc.
95	NSF International
94	Onsite Water Treatment Magazine
48,49	Orenco Systems, Inc.
6	Pirina ABG
87	Polylok Inc.
62,73	Premier Tech Environment
74	Press-Seal Gasket Corporation
41	Quanics, Inc.
84,97	Ring Industrial Group, LP
108	Roscoe Moss Company

Booth #	Exhibitor
85	Salcor Inc.
83	Septi Tech, Inc.
69	SJE-Rhombus Controls
78	Southern Mfg. Co.
91	Sta-Rite Industries, Inc., a division of Pentair Water
61	Tuf-Tite, Inc.
70	Waterloo Biofilter Systems Inc.
17,28	Xerxes Corporation
44	Zenon Environmental Inc.
105,106	Zoeller Pump Company



Conference Registration Form

Please print all of the following information:

Last Name _____ First Name _____

Name for badge (if different from first name) _____

Company/Organization _____

Street Address _____

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

Daytime Phone _____ Fax _____

E-mail _____ NOWRA Membership No. _____

REGISTRATION INFORMATION

Mail this form with a check (payable to NOWRA) or fax your registration with credit card information.

NOWRA

P. O. Box 1270
Edgewater, MD 21037-7270
or
fax credit-card-paid forms to
(410) 798-5741

INQUIRIES

800-966-2942

Registrations are only accepted with full payment in U.S. dollars.

Registrations can be done online visit our website
www.nowra.org

After August 25, 2006, registrations are **only** accepted at the Conference

Please duplicate this form for additional registrations.

PLEASE REGISTER ME FOR THE FOLLOWING:

	NOWRA Members and Partnering Organizations*	Non-Member	Student**	TOTAL
FULL CONFERENCE				
<input type="checkbox"/> Early (on or before July 31, 2006)	\$395.00	\$535.00	\$125.00	_____
<input type="checkbox"/> Regular (August 1–25, 2006)	\$425.00	\$565.00	NA	_____

DAILY CONFERENCE RATE

<input type="checkbox"/> Early (on or before July 31, 2006)	\$200.00/day	\$340.00/day	NA	_____
<input type="checkbox"/> Regular (August 1–25, 2006)	\$250.00/day	\$395.00/day	NA	_____

OTHER FEES (not included in Full Conference Registration fee)

- NOWRA 2006 annual membership dues—\$140 _____
- Onsite Systems Field Trip—\$95.00 (includes transportation/lunch) _____
- Spouse/Guest \$125.00 (includes awards lunch & opening reception, hospitality room and gift) _____
- Golf Outing, Saturday, August 26: Individual \$125 Foursome \$450 _____
 Contact me about providing items for goody bags, door prize, or other sponsorship opportunities (beverage cart or photographs)
- Whitewater Rafting, Saturday, August 26: _____ @ \$46/person _____
- Mountain Train Adventure, Sunday, August 27: _____ @ \$44/person _____
- Colorado Rockies Baseball Game, Wednesday, August 30: _____ @ \$25/person _____

The following events are included in the Full Conference & Daily Registration fees, however additional tickets may be purchased. Please indicate number of tickets needed.

- Annual Membership Luncheon, Monday, August 28: _____ tickets @ \$75.00/each _____
- Opening Reception, Monday, August 28: _____ tickets @ \$40.00/each _____
- Networking Social, Tuesday, August 29: _____ tickets @ \$25.00/each _____

TOTAL DUE _____

- I plan to attend: *Onsite A to Z Systems Course* (Advanced sign up required)
- Exposition Pass—no charge (only access to Exposition Ballroom and Exposition Hall) available at registration desk. ___ Monday ___ Tuesday ___ Wednesday
- Please check here if you require special accommodations to fully participate. Attach a written description of your needs.

*NOWRA Partnering Associations include: The National Association of Wastewater Transporters, the National Environmental Health Association, and the National Groundwater Association, Rural Community Partnership, National Small Flows Clearing House, U.S. Environmental Protection Agency, Water Environment Research Foundation, Rural Community Assistance partnership; National Association of Towns and Townships; Water Environment Federation

**Includes NOWRA membership

PAYMENT INFORMATION (NOWRA EIN #593099430)

Enclosed is a check for \$ _____ made payable to NOWRA. (Returned checks will be charged a \$50 fee.)

Please charge the following credit card: VISA MasterCard | Amount to charge credit card \$ _____

Credit Card Number _____ Exp Date _____ Security Code (on back of card) _____

Credit Card Billing Address _____
Street _____
City _____ State _____ Zip _____

Authorizing Signature (required) _____ Print Name _____



NOWRA 15TH ANNUAL CONFERENCE & EXPOSITION

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All lodging reservations for NOWRA's Conference will be made directly with Adam's Mark Hotels and Resorts Reservations by calling: 1-800-444-2326 or by sending/faxing this registration form. Please remember to ask for the NOWRA group rate.

Cancellations must be made 72 hours prior to arrival. After this time, individuals will be charged for the first night of their reservation or forfeit their individual deposits.

Mail or fax this form to:
ADAM'S MARK HOTEL, 1550 Court Place, Denver, CO 80202
Fax: 303-626-2543
or call
Adam's Mark Hotels and Resorts Reservations at 1-800-444-2326

GUEST INFORMATION

Last Name _____ First Name _____

Company/Organization _____

Street Address _____

City _____ State _____ Zip/Postal Code _____

Country _____

Daytime Phone _____ Fax _____

Sharing Room with _____

Arrival Date _____ Arrival Time _____ Departure Date _____

Type of room: Single Double Triple Quad | Smoking Non-smoking

Special needs request: _____

PAYMENT INFORMATION

Credit Card: American Express Visa MasterCard Discover

Credit Card Number _____ Exp. Date _____

Name on Card _____

Signature (required) _____

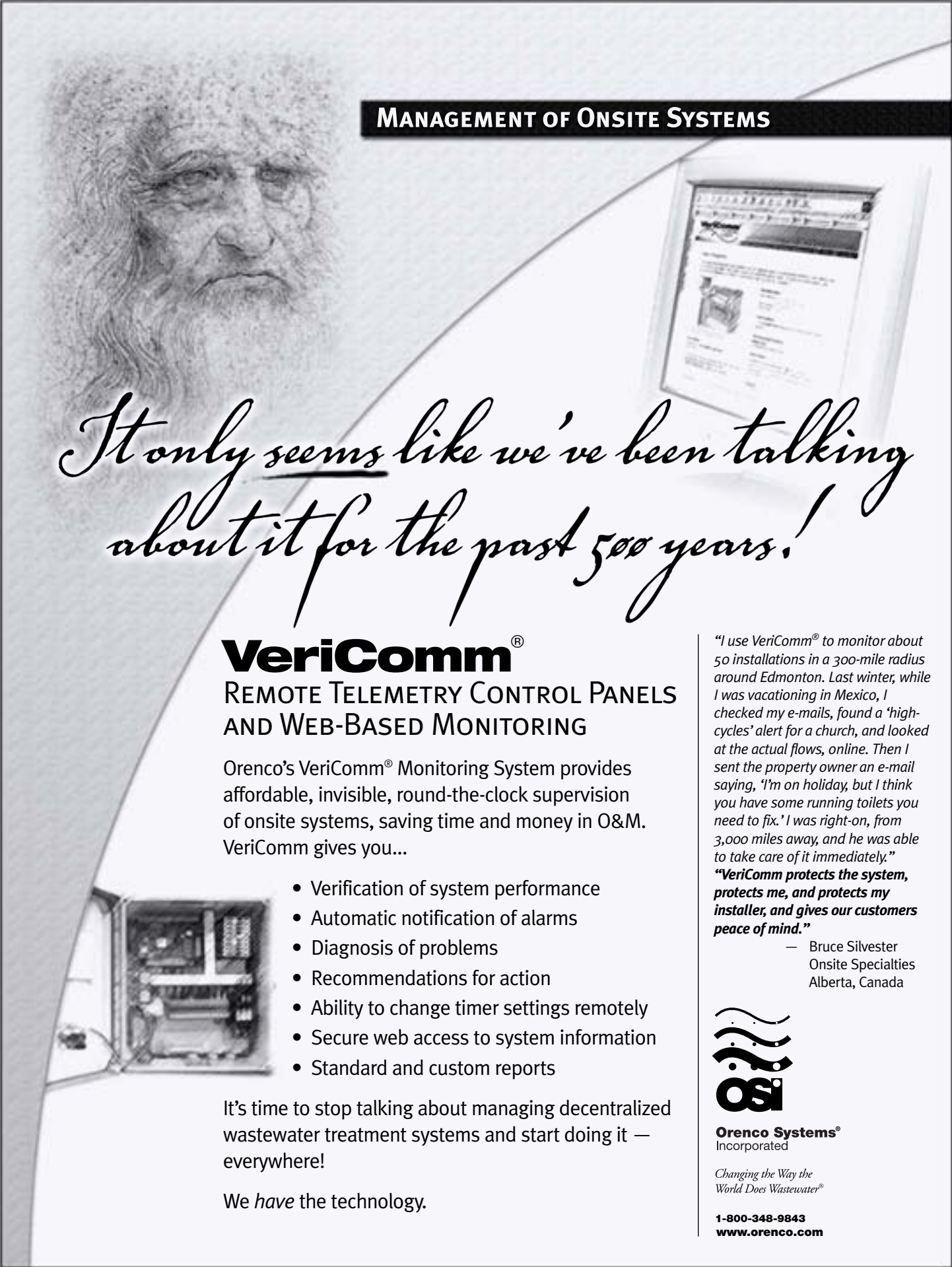
HOTEL ROOM RATES*

	Single Rate	Double Rate	Triple Rate	Quad Rate
<i>Deluxe Room</i>	\$129.00	\$144.00	\$159.00	\$174.00

*Per night plus taxes (13.85%)

Hotel reservations by attendees must be received on or before August 4, 2006.

The 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-rate-available basis at the group rate after this date.



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“Take care, plan ahead, and stay safe”

—Mary K. Clark, Water Resources and Wastewater Management Group Leader, Stone Environmental Inc. and NOWRA Board Member

As employers and employees in the wastewater business, many of us will likely be exposed to unsafe or unhealthy conditions at some point in our careers. However, if we plan ahead and train for these situations, the chance of injury or illness can be dramatically reduced. The creation of a Site Health and Safety Plans (HASPS), which are required on many environmental sites, are far and away the best way to anticipate and document potential hazards, as well outline procedures for attenuating potential risks.

Employees who work on sites that come under OSHA (www.osha.gov) have very specific training, equipment and procedures that must be followed in order to maintain as safe a condition as possible. These sites may trigger a minor level of hazard where hard hats, worker gloves and steel toed shoes are the basic personal protective equipment (ppe) required on site. A site health and safety plan must be developed for these sites. The first consideration regarding hazards is to use engineering and building techniques (such as ventilation systems) to alleviate the hazard. Then personal protective equipment may be employed. The ppe must fit the employee, and the employee should be trained in the proper use of the ppe, and how to keep themselves safe.

Another important piece of a site health and safety plan is an emergency contingency plan. This would include specific information on how to contact and locate the nearest hospital or clinic, as well as specific directions on who is in charge (typically the site health and safety officer or the project manager), and who needs to be contacted during an emergency. While most of the hasp can become “boilerplate”, this section should be specific to the site.

Many workers in the onsite wastewater industry deal with many hazardous chemicals or on physically hazardous sites. We are exposed to hazards from working around heavy equipment,

entering soil test pits, working around failed and surfacing wastewater treatment systems, and potentially working in confined spaces or near poisonous gases. There are also natural hazards such as lightning and high winds, insects, poisonous plants, loose aggressive dogs, and the occasional angry, belligerent citizen.

Any small business owner with 10 or more employees falls under OSHA’s requirements on employees rights to know about any potential hazards they may be exposed to. This includes obtaining and complying with the information included in Material Safety Data sheets (MSDS), which are shipped with hazardous substances including some relatively passive chemicals such as office “white out”. A Corporate Health and Safety Plan must be written and implemented, including ongoing health and safety training, hazard identification and mitigation, and emergency contingency plans.

There are many places now available on the internet that provide MSDS information as well as safety equipment specifications for choosing the right type of hard hat or safety boots. NIOSH-approved equipment is commonly specified. Training videos, on-line training, and booklets and posters are all available for employers. OSHA’s website also includes standards for safety involved with many building activities including excavating and trenching.

Prior to any excavation or soil boring activities, all underground utilities should be identified by contacting DigSafe (). DigSafe is free and is the law in many states and is good common practice to use this service any time that excavation is to occur. It works by providing Digsafe with information on the location of the parcel, the number and depth of holes, etc. Test pit or boring locations are typically staked out and marked with white flagging tape to let the utilities know where you plan to dig. They let you

know which utility companies they will contact, and you must typically plan on a three business day delay before conducting the soil test pits.

The following information should be considered before doing field work. It was produced for the Warren EPA demonstration project by Stone Environmental. It has been edited for this article.

1.0 SITE LOCATION AND CONDITIONS

The first and most basic piece of information should include the site owner or representative with their contact information, a map of how to get to the site, and a site map with boundaries identifying key features on this and surrounding sites (such as water supply wells). Site conditions would include topography, flora, fauna, as well as potential climate hazards such as snow or lightning.

3.0 SITE ACTIVITIES

Site activities would include a short description of the scope of work to be undertaken. An example would be conducting backhoe test pits and inspecting a failed wastewater dispersal system.

3.1.1 Health and Safety Procedures

This section of the HASP addresses the health and safety issues related to the field activities that will be carried out under the following two categories:

1. Potential hazards and their solutions
2. Specifications for protective clothing

Personnel working on-site must be trained in the proper use of personal protective equipment.

Following is a list of general items that should be taken on all site field investigations and should be included in all HASP’s.

1. Cell phone
2. Maps
3. Site HASP with emergency numbers

“Take care, plan ahead, and stay safe” (continued)

4. First Aid Kit
5. Identification
6. Insurance card
7. Water
8. Sunglasses & sunscreen
9. Disinfection wipes or liquid and paper towels

3.1.1.1 Potential Hazards

Hazards include injury from improper equipment use and improper lifting, injury from heavy equipment, slipping, and tripping.

Solutions: Follow correct lifting and digging procedures. Care will be taken in the movement and placement of equipment to prevent collision with other vehicles or equipment, to stay away from power sources, to avoid poor footing, and to avoid injury in the operation of the equipment. Equipment will not be operated during or in the proximity of lightning storms. Use equipment properly and with care; lift properly. Do not overexert. Wear regular work clothes, steel toed boots, hard hats, and hearing protection around drill rig or other heavy machinery. A protective zone should be established around the drill rig, within which the Level D ensemble must be worn. The radius of the protective zone is defined as the height of the drill rig with well casing. All personnel working in the protective zone should know the emergency shut down procedure for the drill rig. All personnel working in the protective zone must read *Drilling Safety Guide*.

3.1.1.2 Protective Clothing

During drilling and excavation activities, regular work clothes, hard hat, hearing protection, and steel toed boots are required.

3.2 WASTEWATER SYSTEM INVESTIGATIONS

Investigation involves uncovering wastewater system components including uncovering the leaching system, septic tank (including taking measurements of scum and sludge levels), distribution boxes, with potential exposure to wastewater. There may be

a possibility of surfacing effluent exposure.

3.2.1 Health and Safety Procedures

This section of the HASP addresses the health and safety issues related to the field activities that will be carried out under the following categories:

- (1) Potential hazards and their solutions
- (2) Specifications for protective clothing

3.2.1.1 Potential Hazards & Solutions

Hazards: Injury from improper equipment use and improper lifting. Injury from being hit by a piece of heavy machinery such as a backhoe or excavator. Strain and stress from hand augering and/or lifting heavy lids. Potential exposures to pathogens, poisonous and explosive gases, electrical shock, lockout and tagouts, confined space entry.

Solutions: Employees should practice good personal hygiene, avoid personal injury, know the basic of first aid, and understand proper safety approaches in confined spaces. The employee must also plan for dealing with any surface discharge of effluent. Regular work clothes at all times. Steel toed boots, hard hats, and hearing protection when in vicinity of drill rig. Use equipment properly and, with care; lift properly. Following is additional information on safety hazards.

3.2.1.2 Pathogens

Working around surfacing effluent or wastewater system components can cause employees to come into contact with pathogenic bacteria in sewage effluent which may be harmful to humans. Types of illnesses caused by pathogens are salmonellosis, shigellosis, typhoid fever, cholera, paratyphoid, bacillary dysentery, and anthrax. Viruses and internal parasites can also cause illnesses. Viruses can cause polio and infectious hepatitis, and internal parasites can cause amoebic dysentery, ascariis (giant ringworm), and giardiasis. Avoid contacting effluent. Discuss

immunizations for tetanus, hepatitis, typhoid fever, paratyphoid, and polio with your physician. When there is a possibility of contact with live wastewater, protection such as latex or nitrile gloves and booties must be worn.

Practicing good personal hygiene is important, because all wastewater should be assumed to be infectious. The following list should be practiced by employees to avoid infection:

1. Keep hands and fingers away from eyes, ears, nose, and mouth
2. Wear latex or nitrile gloves
3. Wash hands before eating or smoking
4. Do not store personal clothes with work clothes
5. Give cuts and scratches first aid immediately
6. Take a shower after work
7. Provide water less hand cleaners
8. Wash all tools and equipment that were exposed to wastewater with warm soapy water

3.2.1.3 Poisonous and Explosive Gases

Another hazard associated with on-site sewage systems is the potential for the build up of poisonous or explosive gases (particularly in pump stations and manholes). One such hazardous gas is hydrogen sulfide (H₂S), which is formed during anaerobic decomposition in the septic tank. Hydrogen sulfide, which smells like rotten eggs at low concentrations, can erode concrete, discolor and remove paint, and can paralyze the human respiratory system. When mixed with oxygen, it forms sulfuric acid (H₂SO₄). Chlorine (CL₂) is another gas that can accumulate in the tank. Chlorine gas is heavier than air, is irritating to the nose and mouth, and forms hydrochloric acid (HCL) in the lungs. In addition, because chlorine displaces air, it can cause suffocation, and air packs are needed for protection.

Carbon dioxide (CO₂), carbon monoxide (CO), gasoline, and methane are other gases that pose hazards to employees. Carbon dioxide is an odorless, tasteless gas that is caused by gas-forming bacteria in digesting organics.

Carbon monoxide is colorless, odorless, and explosive, and causes suffocation. Gasoline is explosive and its vapors are poisonous. Methane, which is caused by gas-forming bacteria digesting organics in septic tanks, is odorless and is explosive when mixed with certain amounts of air.

To prevent problems with the accumulation of hazardous gases, take care when opening septic tank and pump station accesses. *Do not enter any tank or manhole, without monitoring oxygen levels and toxic gases with an explosive meter, proper respiratory protection, proper confined space entry training, equipment and permit, and lockout tagout controls in place (See 3.2.1.5 below).*

3.2.1.4 Electrical Shock

Electrical shock is another potential hazard during on-site inspections. Electrical components associated with pumping stations and advanced treatment systems, and risk of encountering buried electrical lines during site excavations are specific hazards. Because electrical shock can cause serious injury or death, employees should not attempt to repair electrical equipment unless they are experienced with electrical systems. Employees must be qualified and authorized to work on electrical equipment before attempting to make any repairs or troubleshoot. Ordinary 120-volt electricity can be fatal; 12 volts may, on good contact, cause injury. Any electrical system, regardless of voltage, may be considered dangerous unless you know positively that it is de-energized. Remember these basic safety rules when working around electrical equipment.

- (1) Consider potential electrical hazards at all times
- (2) Don't use metal ladders
- (3) Never override any electrical safety device
- (4) Inspect extension cords for abrasion and insulation failure
- (5) Use only grounded or insulated (UL approved) electrical equipment
- (6) Take care not to inadvertently ground yourself when in contact with electrical equipment or wiring

- (7) Have sites "DigSafe" for buried electrical utilities before digging

3.2.1.5 Lockouts And Tagouts

Be aware of lockouts and tagouts. Safe work practices shall be used and be consistent with the nature and extent of the associated hazard. Live parts that have been de-energized but not locked out shall be treated as energized, and de-energized circuits shall be locked out and tagged. Lockout and tagout procedures are that they must be in place before equipment may be de-energized. Live parts must be disconnected from all electrical sources, and hazardous stored electrical energy must be released. The general provisions for lockout and tagout are that live parts must be de-energized unless it is impossible and safe work practices for working on live parts are mandated.

Locks and tags must be placed together unless the lock cannot be applied, and if only a tag is used, an additional safety measure must be used. A lock may only be used without a tag if only one item is de-energized, the lockout period does not extend past the shift, and if exposed employees are familiar with the procedures. A qualified person shall check to see if the equipment is de-energized, test equipment to verify (if it is over 600 volts), and verify that equipment is safe to energize. Only the person placing the lock shall remove it unless that person is not in the work place and certain precautions are taken by the employer. *Only qualified persons are allowed to work on live exposed parts.*

4.0 HEALTH RISKS FOR EXISTING CONDITIONS

The existing health risks at this project site fall into three primary categories: weather, natural toxins, and travel by car.

4.1 Weather

Exposure to sun, rain, snow, wind, dust, heat or cold in one or any of several combinations present risks of hypothermia and hyperthermia, heat exhaustion, sunstroke, sunburn, windburn, dehydration, and frostbite. The risk of these exposures is always present, but is not considered to be imminently dangerous

to health. The risk of these exposures is easily minimized by the use of appropriate clothing and protective gear, intake of liquids and nutrients, and conforming exertion and expenditure of energy to the conditions.

Special notice should be taken in tornado prone areas of the US during tornado season. Determine where the nearest tornado or severe storm shelter is in the site area.

4.2 Natural Toxins

Most field personnel are likely to be exposed to insect toxins (e.g., bees, hornets, wasps, and spiders) or plant toxins (e.g. poison oak, poison ivy) at some point. Although these risks may be ever present, they are believed to present little serious risk in general. Individual persons may experience discomforting, severe or even fatal allergic reactions to one or more of the exposures listed. Individuals known to experience severe reactions should have with them at all times appropriate medication for the emergency relief of symptoms. Individuals experiencing anaphylactic shock should be placed in the emergency medical system immediately. A first aid kit with sting relief must be available on site.

4.3 Travel & Traffic

Driving vehicles to and from work sites can expose one to fatigue, getting lost, heavy traffic, breakdowns and accidents. Working around heavy machinery such as backhoes and excavators, and drill rigs, can expose one to overhead and movements by the machinery.

4.4 Safety Risks for Existing Conditions

The safety risks for the outdoor environment at the project site are in five primary categories: minor cuts and abrasions, vehicles, slipping and falling, falling objects, and weather related risks. The Site Health and Safety Officer shall monitor the site for these risks and report any concerns or incidents to the project manager.

“Take care, plan ahead, and stay safe” (continued)

4.4.1 Minor Cuts & Abrasions

Minor open wounds are the most likely of the risks to persons moving about the site. Cuts and abrasions are most likely to occur as individuals move through the trees and underbrush and run into thorny plants, sharp stones, fencing, sharp ends of branches, and similar objects. Many of these injuries can be prevented by wearing appropriate clothes, gloves, and footwear. Eye injuries can be prevented by wearing safety glasses, goggles, or splash shields. Most injuries require only first aid administered on site. Medical attention should be sought for more serious injuries. All individuals should have current protection for tetanus.

4.4.2 Vehicle Accident, Breakdown

When driving to and from work sites, pay attention to signs of fatigue. Be sure to take regular breaks (at least 15 minutes every two hours). Have emergency contact numbers, and vehicle paperwork including insurance cards handy in case of accident. Vehicular traffic presents opportunities for serious injury to person or property. Be alert when working near vehicles. Follow safety requirements around heavy machinery (backhoes, drill rigs). Assume the vehicle operator is not aware of your presence and give the vehicle the right of way.

4.4.3 Slipping, Tripping, and Falling

Across most sites, there is a potential to slip and trip in ditches or over equipment, particularly when site conditions are wet or muddy. Wear appropriate footwear. Take care when walking around site (don't run). Carry equipment with sharp side away from your body.

4.4.4 Falling Objects

There is little risk of falling objects, the most likely being dead branches, tree limbs, or sluff from the test pit wall. The risk can be reduced by careful observation, avoidance of the hazard and use of a hard hat when overhead hazards are present.

4.4.5 Cold Stress

Cold stress is caused by lowering the body core temperature to a level that causes lowered mental output, fatigue, unconsciousness, coma and ultimately death. Exposure of flesh to cold may cause physical damage to extremities through the onset of frost bite. Conditions for low temperature injuries can be created by low ambient temperature, chilling winds, and perspiration or immersion, causing hypothermia.

4.4.5.1 Monitoring

Mental Function: Monitor personnel for decreases in mental function as exhibited by fatigue, forgetfulness, alertness, increase in minor injuries, etc. Any worker showing signs of decreased mental function shall be placed in a warm environment for a minimum period of 10 minutes. If symptoms persist, the worker shall be released of work that further exposes them to cold.

Physical Signs: If any worker complains of serious discomfort or exhibits discoloration of lips or extremities, numbness, excessive shivering, or discoloration with no shivering the worker shall be removed to a warm location until symptoms are abated.

4.4.5.2 Prevention

Proper training and preventive measures will help avert serious illness and loss of work productivity. Preventing cold stress is particularly important because once an individual suffers from severe exposure to cold, that person may be predisposed to additional injuries. To avoid cold stress, the Project Manager should ensure that the following steps are taken:

Dress Properly: Wear sufficiently warm clothes that do not cause restriction in blood flow or movement. Dress in layers with loose clothes. Wear a warm hat or hard hat liner. Care should be taken not to spend too long in a warm environment while dressed for cold conditions. This may cause excessive sweating (see below) or even heat stress.

Keep Dry: Evaporation of perspiration or water from immersion can cause

rapid cooling of the body, lowering the body temperature further. Care should be taken to avoid short periods of hard labor followed by periods of inactivity.

Provide shelter (heated, if possible) to protect personnel during rest periods.

4.4.6 Electrical Storm Safety

In the event of an electrical storm, site workers shall discontinue operations and seek safe refuge. Work on water shall cease immediately, and all workers shall leave the water as soon as possible. Continuance of work shall not occur until the storm event has clearly passed from the area.

5.0 SITE MANAGEMENT

Site specific briefings will be conducted for site personnel (including sub-contractors) prior to initiating field activities. The briefings will include provisions of the HASP, site specific hazards, and the use of specialized equipment. The site specific training and periodic tailgate meetings to address current conditions at the site are the responsibility of the Project Manager.

5.1 Health and Safety Personnel

The key personnel at Stone Environmental, Inc., responsible for the health and safety provisions of the project are the Corporate Officer, Corporate Health and Safety Officer and Project Manager.

5.1.1 Project Manager

The Project Manager has the responsibility and authority to direct the health and safety aspects of all operations. The project manager has the authority and responsibility to suspend or modify work practices for any reason, including health and safety issues. The project manager is responsible for overseeing the entire operation, developing and implementing the project HASP, providing an adequate supply of safety equipment, and ensuring that all affected personnel have received adequate safety training, and have read this document and understand it. The project manager has the authority to enforce compliance with the HASP, suspend or modify work practices for safety reasons, and to exclude from the site and

project-related operations any individual whose on-site conduct endangers his/her own health and safety or the health and safety of others.

5.1.2 Corporate Health and Safety Officer

The Corporate Health and Safety Officer is responsible for the overall health and safety of the personnel conducting work associated with this project, review of the HASP to ensure its compliance with all appropriate regulations and ensuring compliance with company policy throughout all projects. Any significant changes in working conditions requiring a written amendment to this plan require the oral or written authorization of the Corporate Health and Safety Officer. The Corporate Health and Safety Officer maintains the ultimate decision making authority in any dispute with regard to health and safety.

5.3 Project Personnel Responsibilities During Emergencies

The Project Manager is responsible for responding to and correcting emergency situations. These duties include the protection of SEI employees, evacuating and securing the work area, ensuring that appropriate decontamination procedures are implemented on all SEI personnel, determining the cause of the incident, recommending changes to prevent its reoccurrence, upgrading or downgrading the level of personal protection equipment, and notification of the appropriate federal, state and local agencies. The Project Manager is also responsible for reporting to the Corporate Health and Safety Officer.

6.0 EMERGENCY RESPONSE CONTINGENCY PLAN

6.1 Pre-emergency Planning

The purpose of the emergency response contingency plan is to ensure that in the event of an emergency, personnel on the site will have the information and understanding in place to institute a reasoned and rational response to the emergency without unnecessary delay. The emergencies cover a broad range from acute (sudden onset) illness to fire, explosion, or severe weather conditions. They may

be complicated by the release of contaminants.

6.2 Personnel

Emergency response contingency plans can be effective only if the appropriate personnel understand their respective roles, the line of authority, the training they have received, and the necessity for clear communication during an emergency.

6.2.1 Roles

The role of site personnel in the event of an emergency is to communicate to the Project Manager that an emergency exists, to respond appropriately to the particular emergency signal, to evacuate and secure the work area or emergency area, to conduct the appropriate decontamination activities, to render first aid, and to call the emergency response services (e.g., Emergency Medical Service, Fire Department, or other specialized personnel or services).

Site personnel shall not engage in fire fighting (beyond the use of first aid fire equipment such as extinguishers) or hazardous materials cleanup.

6.3 Medical and First Aid

In the event of cardiac arrest, only qualified site personnel shall initiate CPR. An Emergency Medical Service (EMS) advanced life support team shall be notified immediately.

Minor injuries shall be given first aid treatment on the site. Serious injuries or illnesses require the response of the EMS team.

Any vehicle and equipment used to transport contaminated personnel will be cleaned or decontaminated as necessary.

6.4 Equipment

Minimum equipment on site shall be a ABC dry chemical fire extinguisher and a first aid kit with bee sting kit. Also on site should be bottled water, sunscreen, insect repellent, and a cellular phone. These items shall be kept in clearly marked and accessible locations.

6.4.1 Work Clothes

Steel-toed boot/shoes: Heavy duty leather work boots or shoes with steel

toe and shank. In wet environments, these can be substituted with heavy duty rubber boots with steel toe and shank.

Gloves: As necessary, as when using hand tools.

Coveralls: Long sleeve shirt and long pants will be appropriate in most cases.

Safety Glasses: ANSI-approved, as necessary.

Hard Hat: NIOSH-approved, as necessary.

Hearing Protection: NIOSH-approved, as necessary.

6.5 Emergency Procedures

Personnel should be familiar with the emergency procedures necessary in case of fire, explosion, spills, or leaks. Individuals should also be familiar with their responsibilities in case evacuation of the site is necessary.

6.5.1 Fire or Explosion

Call the Fire Department immediately. Upon arrival of the Fire Department, advise the commanding officer of the location, nature, and identification of hazardous materials on-site. While waiting for the Fire Department the site personnel should use first aid fire extinguishing tools if it is safe to do so. Site personnel should not attempt to work in the vicinity of the burning materials unless wearing full fire fighting protective clothing and equipment.

6.5.2 Spills or Leaks

Locate the source of the leak. Determine the hazard to health and safety. Attempt to stop or reduce the flow if it can be done without risk to personnel. Notify the owner to call its hazardous waste contractor for containment and recovery of the spilled materials.

6.5.3 Evacuation

Evacuation routes shall be determined at the beginning of each day's work. In an emergency, begin evacuation immediately. Do not delay and let the situation become more dangerous.

Notice to evacuate will be by verbal communication. Stay upwind of vapors and smoke. Stay upgradient of spills.

“Take care, plan ahead, and stay safe” (continued)

All personnel shall assemble at a pre-designated location following evacuation and decontamination. The Site Health and Safety Officer shall count and identify personnel to ensure that all have been evacuated safely.

6.5.4 Vehicular Accident

In the event of an accident, address immediate health and safety issues first. Contact the local or state police as

appropriate. Contact rental vehicle agency if appropriate. Also contact the Project Manager as soon as possible.

6.6 Documentation and Reporting

The Project Manager must notify the corporate Health and Safety Officer and Corporate Officer of any incident as soon as reasonably possible. The Project Manager will investigate the

incident and file a report. The report should be based on information recorded in the field. It is important that the records be accurate since they are the basis of the legal and permanent record of the incident. The incident report should be submitted to the Corporate Health and Safety Officer as soon as possible, but within a maximum of 48 hours of any incident. ■

Update on North America’s First Performance Code for Onsite Systems

On May 30th 2005 the BC Provincial Government enacted Sewerage System Regulation came into legal effect. This Regulation placed obligations on the onsite wastewater treatment industry members who were not “Professionals” (i.e. Professional Engineers) to become educated and trained by the B C OnSite Sewage Association and recognized by the Applied Science Technologists & Technicians of BC as a Registered Practitioners. The education, training and registration program was organized to register practitioners in the categories of Planner (site assessor), Installer and Maintenance Provider.

The Regulation required only Authorized Persons (i.e. Registered Practitioners or Professionals) to conduct site and soil assessments, to design, plan, install and maintain onsite sewerage systems with daily flow rate of up to 6,000 us gals. (22,720 litres)

In BC, the Regulation is under the jurisdiction of the Health Act and is administered by local Health Authorities. The new Regulation reduced the role of the Health Authorities Public Health Inspectors and replaced the permit issuance process with a “filing” process. Only an Authorized Person can do a filing of an onsite system, issue Letters of Certification to confirm compliance of the system to a standard practice and issue a maintenance plan for that system. All system must now have written Operation & Maintenance Plan that is the responsibility of the property owner to maintain records of the maintenance.

The Provincial Government established the Sewerage System Leadership Council to review the results of the first construction season under the regulation and BCOSSA has a seat on the 6 member Leadership Council. The Leadership Council is to review the implementation of the new regulation and make recommendations to the government accordingly.

In October 2005, BCOSSA entered in a Memorandum of Understanding with the Provincial Government to be the stewards of the Government’s Standard Practice Manual for the purpose of interpretation and amendments to the Manual. The Standard Practice Manual (SPM) is in essence the prescriptive design manual for onsite systems Province wide. The SPM is amendable by actions of BCOSSA approved by the officials of the Government without legislative involvement.

Issues that have come out of the first season that are being addressed by the Leadership Council are basically 3 items. One is the clarification of standard practice as required by the regulation. Another is the use of non-registered persons to work under supervision of a Professional. The 3rd is the Health Authorities dealing with their new role and enforcement of the new regulation.

The Leadership Council has developed a definition of standard practice that is: “*standard practice*” means the current publication by an onsite wastewater recognized authority that provides a detailed description of a method or technique

and/or treatment objective to be applied to the construction and maintenance of sewerage systems for site assessment, soil evaluation, installation, or maintenance that when applied does not create or contribute to a health hazard or environmental risk, provided that the “*standard practice*” being applied meets the conditions of:

- a. Vertical separation of natural and constructed soil,
 - b. Horizontal setback distances,
 - c. Hydraulic loading rates, and
 - d. Minimum daily sewage flow rates,
- as referenced in the Sewerage System Standard Practice Manual.

The use of non-registered persons under the supervision of a Professional is a source of great robust discussions and is not fully resolved.

The Health Authorities due diligence and enforcement issues arising from the new regulation are being worked on given the new framework under the regulation and what powers and duties are to be exercised and when are being clarified.

This last of the 3 issues is a significant matter that has the potential, if not resolved suitably, to undermine the government’s intended and desired outcome of performance based regulation. There is the expectation that this will be resolved in the next few weeks or months to allow the new regulation to succeed and bring prosperity to the onsite industry, protect public health and the environment and serve the greater public good. ■

A Utility Approach To Decentralized Wastewater Management

—Edward A. Clerico, P.E., LEED AP, President, Alliance Environmental LLC

I. Introduction

The purpose of this discussion is to establish how one would create a utility to serve as the designated Responsible Management Entity (RME) under the EPA guidelines and what the roles and responsibilities of that entity would most likely entail. The EPA began the discussion about RME's with the first Report to Congress on the status of decentralized wastewater system in the late 1990's. There have since been a number of subsequent reports and guidelines issued by the EPA, each one further advancing the concept and developing more detail. The concept of the RME was further defined in an EPA document entitled "Guidelines for Management of Onsite and Decentralized Wastewater Systems", published in 2003. In each progressive publication the definition of RME changes somewhat, but throughout this brief history, it is always put forth as five levels of system management control beginning with Level 1 being a very low level of control and increasing up to Level 5 being complete control. Sometimes the segmentation is referred to as Model Programs and sometimes it is referred to as RME's and sometimes it's a blend of the two with Model Programs being the first three levels and RME being the last two levels.

In the 2003 Guidelines document, the various levels of control were put forth as follows:

Model Program 1—System Inventory and Awareness of Maintenance Need: EPA recommends this as a minimum level of management. Model Program 1 applies where conventional onsite systems, owned and operated by individual homeowners, are sited in areas of

low environmental sensitivity, i.e., no site or soil restrictions such as a high groundwater table or drinking water wells in close proximity. Model Program 1 is intended to raise the local regulatory agency's awareness of the location of systems, raise homeowners' awareness of basic system needs, and ensure homeowner compliance with basic maintenance requirements. This program also serves as a starting point for communities to have basic data to determine if higher management levels are necessary.

Model Program 2—Management Through Maintenance Contracts: EPA recommends this program where sites with limiting conditions, such as small lot sizes, or restrictive soil conditions (i.e., slowly permeable soils, shallow soils with limited treatment capacity or high ground water table) are encountered in a small portion of a community. These limiting conditions require improved effluent dispersal to the soil or additional treatment units such as media filters or aerobic treatment units, and are typically operated through contract with equipment vendors. Model Program 2, therefore, sets higher expectations than Model Program 1 for a regulatory program and for educating homeowners.

Model Program 3—Management Through Operating Permits: This program is recommended in situations where the receiving environment indicates a need for advanced levels of treatment, such as an unconfined aquifer used as a drinking water supply or a fish spawning area. Model Program 3, consistent with the increasing risk, recommends setting measurable performance standards and ensuring compliance by issuing renewable operating permits that indicate specific performance criteria to be achieved. The regulatory agency monitors these systems for compliance with the performance criteria.

Model Program 4—Utility Operation and Maintenance: This program is

appropriately applied where engineered designs, such as aerobic treatment units, are required to overcome site, soil, or environmental conditions that are not conducive to conventional or alternative onsite technology. Frequent monitoring and maintenance are needed in these situations. Model Program 4 recommends that a public/private utility be responsible for operation and maintenance to ensure maintenance needs are met.

Model Program 5—Utility Ownership and Management: Model Program 5 represents the management needs of a more complex program where a very high level of control is required due to public health or environmental concerns. It includes the public/private utility as the designated management entity that both owns and operates the onsite systems in a manner analogous to a publicly owned wastewater utility. This program is similar to the utility concept in Model Program 4. Under this level of management the utility maintains total control of all aspects of management, not just operation and maintenance.

From the Utility perspective, interest really lies in the concepts of Level 3, 4 and 5, but all five are included merely for completeness. It is important to understand that these descriptions are merely attempts to build clarity and they do not represent a real model or a rigid definition. I believe that the most appropriate definition of duties should be tailored to meet the needs of each specific state or region and the ultimate RME entity that best fits a specific region may look like a blend of those spelled out by the EPA. Specific regional considerations need to address:

- The specific rules and regulations of the target state or region
- The existing regulatory structure within the target state what agencies oversee wastewater activities
- The technologies allowed or required by the local authorities

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A Utility Approach to Decentralized Wastewater Management *(continued)*

- The natural constraints and specific environmental objectives that exist in each location.

In March 2003, EPA released *Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems*.

As of September 2004, five states had adopted the Management Guidelines: Arizona, Florida, New Jersey, North Carolina and Rhode Island. These states are mostly likely to be the first to take an active role in implementing the RME approach and be the first to advance this concept, although local needs may drive other states or regions as the needs arise.

This all points to the growing need to have utility organizations step forward to service decentralized wastewater systems in the US. It is likely that this same utility need already exists with regards to decentralized water supplies and will soon evolve with regards to decentralized stormwater management systems, but these topics are less urgent and are generally not discussed in the same context as decentralized wastewater systems.

2. The Utility as a Centralized Service Provider

For the purposes of this discussion, the term “utility” refers to some form of infrastructure that provides public services such as gas, water or electricity. For the most part, utilities operate as monopolies within defined service territories. The monopoly aspect is a matter of practicality and efficiency. It would be impractical for many utilities to have competing assets within the same service territory given the high cost of the asset and the need to have that asset serve as many customers as possible in order to be most affordable.

The following are some general characteristics of utilities:

- Utilities are asset based institutions that focus on building and maintaining infrastructure that provides specific vital customer services
- Utilities are either government owned or government regulated—

many operate as departments within public bodies while others are stand-alone government or quasi-governmental entities such as districts or authorities

- Privately owned utilities are regulated to
 - Limit profits—monopolistic characteristics require government regulation of profits to assure fair rates and good asset management behavior.
 - Control and assure specific service levels—through adopted tariffs, government regulators generally oversee utility customer service provisions to assure that quality service and fair treatment of customers is provided
 - Limit service territory to stay within government granted franchise areas
- Utilities that are government owned are often heavily subsidized by government grants and loans that are supported by tax dollars

With the advance of modern technology, the landscape of the utility world has changed rapidly over the past 20 years. In several sectors there are non-traditional service providers offering competition to what were once strictly monopolistic utilities. Phone service is one prime example of this situation. With the advent of cellular phone service, local phone companies which were originally created within sole service franchise areas are now facing competition from wireless service providers to the extent that some customers rely solely on wireless phone service. Cable television service is another asset based utility industry that faces stiff competition from satellite wireless service providers.

There are similar trends in the power generation business where several years ago cogeneration became cost effective and popular amongst industrial power users thereby allowing them to provide on-site generation of power for their own use and potential sale to outside customers. In addition, the growing popularity of solar photo-

voltaics and wind power represent another non-utility power supply solution to what was once strictly a utility business.

Even though some of the recent changes have been dramatic, centralized monopolistic utilities still play the primary role in public service and will continue to do so for many years into the future. The recent utility business changes that are being experienced in the phone, cable and power industries will definitely continue, but as demand for services grow and as the population continues to shift, centralized services will continue to play vital role in our society.

The water and wastewater utilities in the US have faced a much lesser degree of competitive changes by comparison to other utilities. This is mostly due to the fact that water resource management in itself is a very local matter.

- Water is heavy and difficult to transport over long distances making it by nature a local issue.
- Water is cheap because it falls from the sky and it does not command the prices and revenue margins that are associated with other utilities
- Pollution control regulations generally require that contamination be treated before discharges impact downstream communities, so this also becomes a local matter except in the largest regional systems.

That is not to say there have been no changes in the water and wastewater utilities. There have been many, but the industry is highly fragmented into 54,000 separate water systems and 16,000 separate wastewater systems and that only counts those that are considered centralized. In addition there are 25 million households being served by individual/decentralized wastewater systems and probably an equal or greater number being served by individual/decentralized water systems. As a result of this fragmentation, the water and wastewater industry has not experienced the rapid technological innovations found in other utility based industries.

Whereas, there have not been major structural changes in the water and wastewater industry, there have been some very interesting changes in related industries that point to a some interesting future possibilities:

- The beverage industry now sees bottle water as one of the fastest growing market sectors with reports indicating a continued 10% growth rate in the near future. The water utility industry did not create this change, the consumer found a preferred method of furnishing itself with at least a small portion of its potable water supply.
- Point of use treatment devices are a rapidly growing market with many forms of water filtration and purification devices now being installed in individual homes and buildings. Large businesses such as General Electric and Maytag are offering sophisticated in-home treatment systems for water purification.
- Wastewater reuse is growing in acceptability and affordability and many examples exist where this is occurring on a decentralized basis.
- The EPA has ramped up the urgency and attention given to decentralized wastewater systems and the connection between nonpoint source pollution, TMDL's and individual septic systems is now becoming widely recognized.

It is very likely that the water resource industry in general is poised for significant change in the near future. Changes that could possibly be as dramatic as those witnessed in other utilities.

3. How Water and Wastewater Utilities Are Regulated

The regulation of water and wastewater utilities is substantial and multifaceted. Essentially, there are three regulation paradigms; public health, environmental and financial. Each regulatory entity provides various regulations, standards, permitting regimes and enforcement. The public health and environmental regulators dictate to a large degree what services the utilities must provide, how these services are to be provided and to whom. The public health

and environmental regulations are often overlapping in jurisdiction and implementation and sometimes are found within one regulatory body. The financial regulators dictate how much the customer will pay, how they will be charged, under what terms they will be charged and how much the utility must provide in financial reserves. In the case of the private for-profit utility, the financial regulator also determines how much profit is allowed.

The public health and environmental regulations are normally uniform and apply to all utilities regardless of how they are owned or operated. That is to say, publicly owned utilities are generally faced with the same regulations as privately owned utilities because these regulations are designed to protect the customer. This is not the case with regards to the financial regulations. For publicly owned governmental or quasi-governmental utilities, the financial regulations are generally not rigorous and in some states are nonexistent. Where financial controls are lacking, local politics provide a basic means of self control. When problems occur or rates escalate, the incumbent party is generally replaced by the voting public. This is not a very efficient system of control and it often leads to underfunded utilities, lack of capital planning and poor asset management.

In the case of for-profit privately held utilities, state level financial regulators control water and wastewater utilities in a manner similar to power, gas and phone utilities. The utilities operate on a rate-based-rate-of-return system whereby they are allowed to earn a profit based on how much equity they have invested in their assets. Across the US, utility financial controls generally follow this approach. The allowed profit is somewhat tied to other market return rates such as the interest rate on long term investments. The objective of the financial regulator is to allow the utility to earn enough to encourage investment while keeping returns commensurate with the risks of the utility business. Utility business is considered a relatively low financial risk and therefore the profits are lower than what would be found in higher risk

industries. The financial regulator wants the utility to be financially healthy while not overcharging the customer.

There are similar but different financial models for the governmental and the for-profit private utilities. The governmental side utilizes a user charge system that establishes necessary reserve funds that are required to repair replace and expand services to customers. The governmental entities have the benefit of being tax exempt and eligible for federal grants and low interest loans, thereby helping keep costs lower. Only recently has the federal government attempted to provide uniformity in the accounting mechanisms utilized by public entities to assure that all cities and towns are treating all assets in a similar manner. Again, this is a somewhat less rigorous accounting standard then is applied to privately held companies that must follow Generally Accepted Accounting Principals (GAAP) and must adhere to the specific State's Public Utility Commission's regulations.

For-profit private utilities operate under accounting systems that includes depreciation of all assets as a means of funding repair and replacement requirements as well as system upgrades. Private entities are generally not eligible for federal funding except from certain water supply funds. Private entities also pay income taxes and often pay additional franchise taxes depending on the rules of the individual states. Private utilities have access to private financing vehicles and the financial regulators generally like to see the utility maintain a healthy combination of debt and equity investment. In most cases the target split between debt and equity is a 50:50 or a 60:40 ratio. This balance between debt and equity is designed such that it establishes the necessary financial austerity to allow the utility to attract loans from financial institutions while it also provides enough return to attract equity from private investments, generally through the stock markets. Private utilities also have the benefit of being able to serve larger customer bases whereas governmental utilities are normally limited to service within a specific political

jurisdiction or geographical boundary. This gives private utilities the opportunity to grow and gain economy-of-scale advantages that can be very significant.

Overall, these various characteristics balance out and both governmental and private utilities provide viable service delivery mechanisms. The method of choice will vary depending on the political nature of each area and various market drivers. Private utilities will be more attracted to places where growth rates are higher and where the financial regulations are more favorable. Governmental utilities will be more prolific where existing governmental utilities already exist and where regionalization is favored politically. States without strong regional forms of government are generally less well suited to utility services and in these cases the utilities will normally expand from existing urban centers.

4. The Utility as a Decentralized Service Provider

The question at hand is how can the centralized utility model that exists within our water and wastewater industry be adapted to the decentralized wastewater industry. Again, this same question probably applies to the decentralized water industry and will someday apply to the decentralized stormwater industry, but for the purposes of this discussion will focus on the decentralized wastewater industry only.

As with the significant changes that have affected the other utility businesses in the US, this shift to decentralized services will require a rethinking of some of the business behaviors and control mechanisms typical of utilities, in particular it requires a customer perspective that is unique for this industry. The wastewater industry generally worries about the regulator and compliance issues without thinking very much about the customer's attitudes, desires or possible choices. However, as decentralized services evolve they open up the possibility of varying services to fit the needs of the specific customer thereby allowing varying service levels and risk sharing.

Across the US, there are several decentralized wastewater utilities evolving that are providing identical or similar services to larger centralized service providers. One key to the success of these early entries into this market has been an ability to centralize management without having to centralize the physical asset itself. With modern technology, there is no reason why a decentralized wastewater customer can not obtain the same level of service as a customer that is connected to a centralized systems.

Vertical integration of services has been another key to success. Without a utility, the customer is faced with sorting out the rules, regulations, professionals, suppliers, contractors, etc. which leads to inconsistent design approaches, non-standardized equipment and very unpredictable performance results and no one entity with clear responsibility and liability when problems arise. With a decentralized utility, considerable efficiencies are gained by vertically integrating the complete delivery mechanism to include standardized designs, equipment and services such that performance can be assured and liability is well defined within one entity.

In New Jersey, the Applied Water Management Group has obtained a uniform rate and tariff that allows all customers within that state to participate in the same decentralized wastewater system. In this manner, even though the systems are small, they behave collectively as one large utility. Applied Water Management is part of American Water, the largest water utility in the US and this represents the first foray of a large water resource utility into this arena. They are carrying this model to Delaware, Virginia and Connecticut. The Applied Water Management Group model follows the USEPA protocol as a Level 5 Responsible Management Entity, where the service provider owns the assets that provide the service and retains all responsibility for proper operation and maintenance. This fits the classic utility model described earlier that applies to most asset based utilities in the US.

In other states there are various forms of RME's evolving also, but they each have their own unique approach and characteristics. This follows from the fact that each state has unique utility regulatory requirements from both the financial regulatory side and the environmental/health regulatory side. While some states require higher degrees of wastewater treatment and controls, others have stronger financial control and reporting requirements for utilities. One problem often faced stems from the fact that some states do not regulate wastewater utilities from a financial perspective as they do water utilities. In this case enabling legislation is often required to implement the appropriate financial controls. This is generally not a difficult matter because the financial regulations are normally well established for the water utilities and they can readily apply directly to the wastewater utility without too much deviation. Considerations specific to metering and service shut-off are unique to wastewater, but most other provisions directly apply.

5. Applying the Responsible Management Entity (RME) Concept

As discussed earlier, the USEPA has established the RME concept as the next step in regulating decentralized wastewater systems in the US. It is now recognized that decentralized systems are a permanent fixture of our overall wastewater infrastructure and that they need to have the same level of management as provided all other utilities. The difficulty with developing the RME concept is that there are widely varying views and needs with regards to how much control is needed and how it should be applied.

To provide some context to this subject, the EPA has issued several proclamations on this subject:

EPA's Vision

Decentralized wastewater treatment systems that are appropriately managed, perform effectively, protect human health and the environment, and are a key component of our nation's wastewater infrastructure.

EPA's Mission

EPA will provide national direction and support to improve the performance of decentralized systems by promoting the concept of continuous management and facilitating upgraded professional standards of practice.

Strategic Goals and Actions

This program strategy builds upon EPA's 2003–2008 Agency Strategic Plan, which identifies septic systems as a source of pollution. The program strategy includes the principles and strategic goals that will guide EPA's decentralized wastewater program over the next five years. To accomplish these goals, EPA will implement a series of actions internally and externally through partnerships with state and local governments and national organizations representing practitioners and the public (see Key Strategic Goals and Actions section).

To begin to define what one must do to implement an RME/Utility it is important to understand the various tasks and responsibilities identified by EPA and

to review how they envisioned them being assigned to various entities. We are not beginning with a clean sheet of paper when we look at the subject of decentralized wastewater systems and the RME concept. There are already a myriad of state and local regulations and regulatory bodies that are involved in this subject and it would not be practical or wise for the EPA to simply dictate a new paradigm. To approach the subject gently, the EPA along with an extensive stake holders group has put forth a menu of services and service providers and attempted to define specific roles and responsibilities of each.

This EPA menu is only a sample meant to serve as a guide and the redistribution of these tasks is required for each emerging RME based on the specifics of its service area. The following three tables summarize a very subjective ranking of the various tasks for RME Levels 3, 4 and 5 as defined by the EPA in an attempt to assess the levels of effort and responsibility that each service provider incurs. As mentioned earlier, RME Levels 1 and 2 do not readily fit the service requirements one would normally associate with a utility

and they have not been addressed here. It is interesting to note that RME Level 4 requires the highest level of overall effort because there is considerable duplication of responsibility illustrating that this model is not the most efficient.

These tables only provide an idea of how a Model is structured and what the RME/Utility and other parties are expected to provide. In reality, the EPA has not distributed the responsibilities in a manner commensurate with other typical utility business models, but instead the models seem to reflect the existing status quo of the decentralized wastewater business as it currently exists. Therefore, to take this subject one step further I have designed a hybrid version of the menu that loosely defines how a utility might fulfill the various service requirements of the RME.

This hybrid model was conceived to provide a more compelling offer to the local authorities with regards to service value and efficiency of service delivery by eliminating most of the fragmentation in the service delivery chain. The hybrid RME/Utility is the last table in the following series.

SUMMARY OF EPA MANAGEMENT MODELS 3 THROUGH 5 AND AWM RME UTILITY

This is a subjective evaluation of the level of effort required to carry out the duties of each task by each entity, or service provider. A more detailed evaluation of actual man hours and costs would be much more accurate. This simple illustration does point out how much effort is required by the Regulatory Authority to keep all of these entities in line and functional. It is only with the hybrid utility model that the bulk of the responsibility shifts away from the Regulatory Authority and to the RME/Utility.

**Clerico's Summary of Decentralized Wastewater System Responsibilities
RME Level 3**

Entities	Regulatory Authority	Service Provider	Inspector Operator	Designer	Installer Contractor	RME/Utility	Owner User	Pump & Developer	Haul	
Tasks To Be Performed										
Public Education	4	2					1		7	
Planning	3							1	4	
Performance	3						5		8	
Training & Certification	3	3					1		7	
Site Evaluation	3	4					1		8	
Design	3			5			1		9	
Construction	3			3	5		2		13	
Operation & Maintenance	4		5				4	4	17	
Residuals Management	2							2	4	
Compliance & Monitoring	5						2	2	9	
Corrective Action	4		2	2	5		3		16	
Records, inventory, report	4		4				3	1	12	
Financial Assistance	5							5		
	46	9	11	10	10	0	23	1	9	119
Responsibility Share	39%	8%	9%	8%	8%	0%	19%	1%	8%	100%

Key: Extensive Responsibility = 5 Very Limited Responsibility = 1

**Clerico's Summary of Decentralized Wastewater System Responsibilities
RME Level 4**

Entities	Regulatory Authority	Service Provider	Inspector Operator	Designer	Installer Contractor	RME/Utility	Owner User	Developer	Pump & Haul	
Tasks To Be Performed										
Public Education	3	2				2	1			8
Planning	3					3		1		7
Performance	3					4	3			10
Training & Certification	2	2				2	1			7
Site Evaluation	3	4					2			9
Design	3			5			2			10
Construction	3			3	5		3			14
Operation & Maintenance	4		5			5	3		4	21
Residuals Management	2					2			2	6
Compliance & Monitoring	4		4			4				12
Corrective Action	5		2	2	5	2	3			19
Records, inventory, report	5		4			2	2		1	14
Financial Assistance	5					2				7
	45	8	15	10	10	28	20	1	7	144
Responsibility Share	31%	6%	10%	7%	7%	19%	14%	1%	5%	100%

Key: Extensive Responsibility = 5 Very Limited Responsibility = 1

**Clerico's Summary of Decentralized Wastewater System Responsibilities
RME Level 5**

Entities	Regulatory Authority	Service Provider	Inspector Operator	Designer	Installer Contractor	RME/Utility	Owner User	Developer	Pump & Haul	
Tasks To Be Performed										
Public Education	3	2				2	1			8
Planning	3					3		1		7
Performance	3					5	2			10
Training & Certification	2	2				2				6
Site Evaluation	3	4				2				9
Design	3			5		1				9
Construction	3			2	5	2				12
Operation & Maintenance	4		5			5	3		4	21
Residuals Management	2					2			2	6
Compliance & Monitoring	4		4			4				12
Corrective Action	4		2	2	5	4				17
Records, inventory, report	5	4				2			1	12
Financial Assistance	5					2				7
	44		8	15	9	10	36	6	17	136
Responsibility Share	32%	6%	11%	7%	7%	26%	4%	1%	5%	100%

Key: Extensive Responsibility = 5 Very Limited Responsibility = 1

Clerico's Summary of Decentralized Wastewater System Responsibilities Hybrid RME/Utility Concept

Entities	Regulatory Authority	Service Provider	Inspector Operator	Designer	Installer Contractor	RME/Utility	Owner User	Developer	Pump & Haul	
Tasks To Be Performed										
Public Education	1					5	1			7
Planning	3					4				7
Performance	3					5	2			10
Training & Certification	2					5				7
Site Evaluation	3					5				8
Design	3					5				8
Construction	3					5				8
Operation & Maintenance	3					5	3			11
Residuals Management	2					4				6
Compliance & Monitoring	4					5				9
Corrective Action	4					5				9
Records, inventory, report	5					5				10
Financial Assistance	5					5				10
	41	0	0	0	0	63	6	0	0	110
Responsibility Share	37%	0%	0%	0%	0%	57%	5%	0%	0%	100%

Key: Extensive Responsibility = 5 Very Limited Responsibility = 1

6. Summary and Conclusion

There are many variables and many considerations with regards to establishing an RME to meet the needs and desires of the regulators and residents of any one area. As a result, there are many alternatives that will evolve and be viable. The concept of utilizing existing private utility models as one alternative is compelling because it offers the ability to gain economies of scale and to offer services that are tailored to specific customer desires.

As an example, there is no reason why a utility could not have an established rate and tariff structure that would allow customers to join the utility under either Level 3, 4 or 5, with hybrid models developed for each so that the various services are consolidated into one responsible entity, the RME, to the greatest degree possible. Whereas, the above tables only reflect the levels of responsibility for providing specific services, they do not illustrate the distribution of financial responsibility. It is clear that the homeowner retains all of the financial responsibility for system installation and repair under Level 3 (as well as Levels 1 and 2), shares the responsibility under Level 4 and transfers the

responsibility entirely to the RME under Level 5. Obviously, the cost of service under Level 5 will be much greater than under Level 3. Why should the homeowner be forced into any one of these alternatives when it is possible to allow them a choice that best fits their needs and desires?

Some RME proposals have met strong opposition from the public because joining the RME is generally mandatory and the level of service is already defined. Creating a mandatory RME that does not allow for customer choices is likely to spur opposition and disdain. People are generally opposed to having an unsolicited entity thrust upon them and they view this as an infringement on their rights as free citizens. Yet, people generally understand and appreciate the need for good public health and strong environmental protection. It would be much preferable and less offensive to allow the homeowner the option of selecting what level of service is desired and what level of risk they desire to retain or transfer. Under Level 3 they would be licensed and monitored, but retain all of the direct control and risk while under Level 5 they would be not have

any direct control, but they would also have no risk.

To adapt the traditional utility business model to any of these three levels of service, a hybrid of each would be created to enhance the efficiency of the service delivery and to provide the same level of stability found in other utility sectors. Ultimately, this would provide the best alternative for RME implementation because it lessens the burden on municipal government and it improves the efficiency of the service by gaining the benefit of a larger customer base that spans municipal and even regional boundaries.

The RME concept is discussed herein from the perspective of on-site wastewater management, but the same theory would apply to on-site wells and on-site stormwater management. Even though individual well water supply and stormwater management are not as pressing at the moment, establishing integrated water resource management infrastructure is a key consideration for the future and any efforts put towards establishing an independent RME for septic systems should consider and allow provisions for RME management of individual wells and decentralized stormwater management systems in the future. ■

Stumbling Blocks on the Road to Success

— **Ellen Rohr**, Financial and Business Management Consultant

In this country, in these times, we have access to everything we need to be healthy, wealthy and wise. So...what's getting in the way?

Maybe you are.

The stumbling blocks on the road to success are of your own creation. I've listed the most common ones below. Recognize any of them?

1. **Wishing and wanting.** Do you have a *written* list of goals? When you write down what you want to be, do and have . . . you hurdle a big stumbling block. Mark Victor Hansen, the *Chicken Soup for the Soul* author, suggests you write a list of 101 goals . . . from mild to wild. Why not? Those who write down their goals are more likely to achieve them. Get going and get specific. Break the goals into monthly, weekly, daily to dos. You KNOW this. Quit *wanting* things to be different. Make it different.
2. **Brainy guys get paralyzed.** I love Bill Rosenberg, founder of Dunkin' Donuts, and Ray Kroc of McDonald's. These guys . . . no offense fellows . . . were not geniuses. Have you read their autobiographies? They were adequately intelligent. The smarter the person the more likely he or she is to set up a stumbling block. The smart set can imagine so many ways that things can go wrong. They see every possible future scenario. They can see all the imperfections in a plan. So,

they end up doing nothing. NO plan is perfect enough. Sheesh. It's called "Paralysis by Analysis." Do you suffer from it? If so, dumb it down a little. Take action in light of uncertainty. Passion and enthusiasm trump smarts every day.

3. **Blame laying.** On the economy. On customers. On competitors. Stop already! What difference does it make? Consider this: If the source of your problems is outside of your control, quit talking about it. Do what you can do. Lay out a plan of action, execute the plan. Assess your results; tweak the plan . . . and KEEP MOVING.
4. **Stating, and restating, and stating again . . . the problem (aka whining).** Picture your association meeting. The biggest whiner will find a few other losers and start a pity party. Woe is me, woe is you. Refuse to participate in these conversations. No good comes of them. Find the MOST successful members of your group. Ask good questions...and LISTEN. How did they overcome the stumbling blocks? Find out.
5. **Sloppy shop.** The foundation of a focused, organized, successful business is CLEAN. Clean is all good. Sloppy is all bad. Not sure what to do to become more successful? Start by cleaning up. Throw out what you don't need or could find elsewhere. Consider your office prime real estate . . . what NEEDS to be close to you? Put projects in binders or file cabinets. Be selective about what goes up on the walls. Use frames and cork boards...NO tape or pins directly in the sheetrock. Dust, mop and paint. Create a sanctuary in which you can create your finest work. I have NO TOLERANCE for a sloppy shop. No matter how tough times get, you can always clean it up. I have NEVER seen a sloppy, super successful shop.

6. **Hunt for the Silver Bullet.** There is no piece of information that is going to make everything all better. You know plenty. You know enough to be successful. Act on what you know. There is no item of technology that will make all the difference. There is no single marketing piece that will solve all your problems. Paul Revere rounded up the revolutionaries by riding on horseback from town to town, shouting, "The British are coming!" Get moving.

7. **Family/Health/Spirituality is more important.** Success in your professional life and your personal life are not mutually exclusive events. Success in one area of your life can build success in other areas. Quit using this excuse. Buddhist author Jack Kornfield said this in response to a question about spiritual practice and the rest of your life, "In time you will realize that all of your life is part of your practice." You have enough time to devote to the MOST important areas of your life. Weed out the less important stuff.

8. **Denial is not a river in Egypt.** Denial is when you KNOW something, but act as if you don't. A friend called me for advice regarding an employee who is currently on Workers' Comp leave. After a few minutes of complaining about this employee's poor performance...and possible insurance fraud...he told me the employee was expected to return to work in a few weeks. "Wait a minute," I said, "do you WANT him back?" So often, we waste time on actions that are 100% counter to our goals and plans. It's hard enough to make decisions when we don't have much information. Don't waste time on decisions you have already made. Wade through the denial.

9. **Adding to instead of taking away.** You won't be successful doing more, more, more. Keep a time card for a week and jot down everything

This is one of several articles from Ellen Rohr, Financial and Business Management Consultant and owner of "**Bare Bones Biz Basics**." Ms. Rohr provided an enlightening program at NOWRA's First Installer Academy and will again give a two day instructive program at the Second Installer Academy, December 4-5, 2006, Las Vegas, NV. She is also the author of "Where Did the Money GO?"—focusing on the skills businesses need to be successful.

you do. How much TV do you watch? How much time do you spend discussing what you are going to do . . . instead of just doing it? How about Internet shopping, searching . . . or computer games. According to the "80/20 Rule," you get 80% of your production from 20% of your efforts.

10. **Which leads us to the all time biggest stumbling block:** We continue to do that which doesn't work. Review *your* time card. Stop doing that which isn't contributing to the realization of your goals. Want to grow your company? If after 5, 10, 50 years, you are still at two trucks, you might try doing things differently.

You need to ask yourself if you really want to be successful. You are the one holding you back. And you are the key to your success. The choice is yours. Create the stumbling blocks . . . or hurdle them. ■

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INDUSTRY NEWS

Zabel Sells Filter Product Line to Polylok, Inc.

On March 31, 2006, ZABEL announced that it had sold the assets of the effluent filter product line to Polylok, Inc., a privately held company.

"Polylok's manufacturing expertise will continue to improve the quality of the Zabel brand effluent filter line. At the same time this sale is an important step toward our efforts to focus on the emerging advanced treatment systems market through the formation of our new company, Quanics," said Harry Nurse, President of ZABEL and Chairman of the Board of Quanics, Inc.

Founded in 1990, ZABEL is recognized as the market leader in creating the effluent filter market segment. ■

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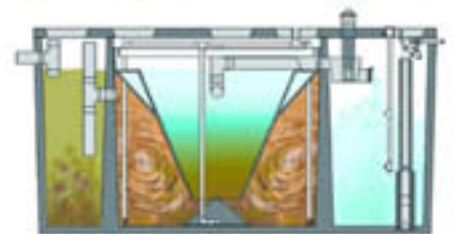
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