Winter 2009

ONSITE journal

NEWS FOR THE DECENTRALIZED WASTEWATER INDUSTRY

Vol. 18 No. 1

Featuring this Issue:

- **18th Annual Technical Conference and Expo Register Today!**
- **Creating Resilient Cities in Uncertain Times**
- **Truly Sustainable Water Infrastructure**
- **The Regulator's Corner**
- **News from Around the States**

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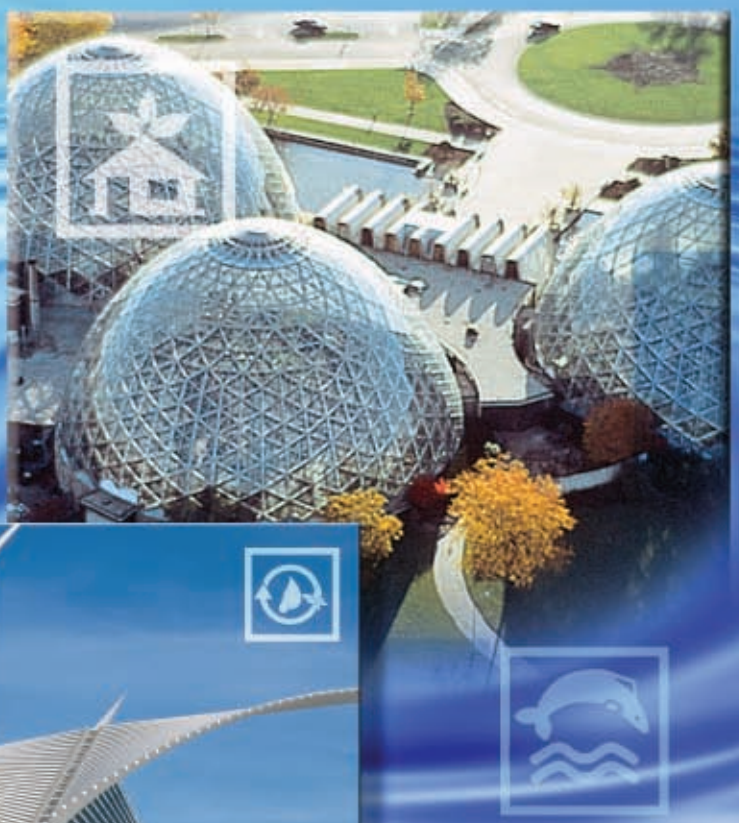

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NOWRA LETTER FROM THE PRESIDENT

National Onsite Wastewater Recycling Association

By Thomas Groves

As my term as NOWRA president begins and as we enter into a new and hopefully more promising year for our industry, I would be remiss without first thanking our past president Jerry Stonebridge for his past two years of leadership and commitment to NOWRA. Jerry's leadership guided us from the critically acclaimed 2007 International Conference in Baltimore to our most successful Installer Academy in 2008. Most importantly, under Jerry's leadership NOWRA began laying groundwork and opening doors with many key partner organizations in the decentralized industry and beyond. Much of his hard work will not be immediately seen, but as NOWRA moves forward, I know we will see the fruits of his labor.

I would also like to thank the Board of Directors and Committee Chairs whose term expired at the end of 2008 and welcome our new Board of Directors and Committee Chairs. Without the volunteer efforts of individuals like these, NOWRA would not be able to survive. Special thanks to Past President Raymond Peat, past Board members Mary Clark, Kornell "Trapper" Davis, Mark Hooks, George Loomis, Howard Wingert and to past Chairs Karen Borgeson (Marketing), Matt Byers (Tech Practices), and Howard Wingert (Finance). Please read NOWRA Vice President Dick Otis' article in this *Onsite Journal* about the importance of getting involved with the organization (see page 27). We are only as strong as our volunteers.

2009 was supposed to be a break through year for NOWRA as we were coming into the year with fresh new ideas and focus as a result of our Strategic Plan session last August. Unfortunately, the continued economic situation has tabled some of our plans until better financial times. NOWRA's leadership understands this and will temper our expectations for 2009, but not forget the work that went into our Strategic Plan development. The Board has also made cutbacks in our overall operational budget to adjust to the downturn in the economy and reduce costs. With the assistance of our management association, BTF Enterprises, we were also able to reduce a lot of everyday expenses. Although we are being budget conscious, please be assured that core activities for NOWRA members have not been reduced and as things turnaround, we are poised to gear up.

As we move into 2009, you will see the beginnings of some of the priority items from the Strategic Plan. We realize the necessity to move forward, but we can only do so through the assistance of our volunteers. NOWRA's Committees have been able to pick up the work and proceed with its development until such time as we can better financially support the efforts. This places a large burden on these volunteers, even more reason why they need your support to get involved.

In 2009, you will see NOWRA become more active as a national voice.

One of the expanded services that you will see in 2009 is NOWRA's new monthly email communication—NOWRA *e-News*. We realized that there is oftentimes important news that NOWRA wants to get to our membership, but waiting for the next *Onsite Journal* can sometimes delay the news. The goal of *e-News* is to deliver those updates in a condensed and timely fashion to our membership so you know what is going on at headquarters, in Washington, D.C., or in other affiliate organizations. We are also proceeding with an online resource library of research and information for our industry. This was a high priority item in our Strategic Plan from our two main focus groups—affiliates and manufacturers. Preliminary work has begun on this large task, so watch for more information later in the year.

If I was asked what was our largest success in 2008 and what offers us the most potential for 2009 and beyond, I would have to say it is our continued involvement and commitment with the U.S. EPA Memorandum of Understanding (MOU) Partners. In the last issue of the *Onsite Journal* you read about NOWRA's renewed commitment to this MOU and our participation at the official signing ceremony in Washington, D.C., at EPA headquarters. NOWRA has been participating for years with many of these partners in an unofficial capacity, but now it has been officially recognized. As fragmented as the onsite/ decentralized industry is, this MOU is more important than ever in providing us a consolidated voice for the onsite industry. If we have any hopes of obtaining proportional funding for our onsite infrastructure, we are going to

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ONSITE journal

Winter 2009

NEWS FOR THE DECENTRALIZED WASTEWATER INDUSTRY

National Onsite Wastewater Recycling Association, Inc. Vol. 18, No. 1

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LETTER FROM THE PRESIDENT *(continued from page 2)*

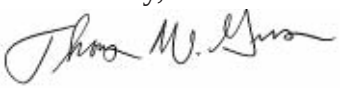
need this consolidation. In 2009, you will see NOWRA become more active as your national voice.

The recent 4th Installer Academy demonstrated our renewed commitment toward partnerships. This was best exemplified with the inclusion of key programs, certifications, or sessions at the Academy by CIDWT, NEHA, and NAWT. NOWRA plans to take this partnership to a new level in the future as plans are underway for our 2011 annual conference to be part of a larger super-partner conference. Watch for more details on this in the future.

Lastly, I would like to encourage each of you to attend our Annual Conference coming up this April in Milwaukee, Wisconsin. This conference promises to be our best conference ever. Our Conference Committee has been working diligently with our Education Committee, Marketing/Communications Committee, and our local sponsor—the Wisconsin Onsite Water Recycling Association (WOWRA) to make this event special. A timely pre-conference session has been scheduled on Pharmaceuticals and Personal Care Products (PPCPs) in the environment. We also have great field trips planned, an expansive trade show, and top notch education sessions to help you stay on top of the latest research and technology in the field. I hope to see you there.

Thank you for allowing me to serve you and the organization.

Sincerely,



Thomas Groves
President

NEWS FROM NOWRA HEADQUARTERS

Since our last issue of the *Onsite Journal*, the team at NOWRA Headquarters has transitioned from celebrating the success of the 2008 Installer Academy to coming to terms with the economic climate while laying the groundwork for a top notch 2009 Annual Conference.

The turnout at the Installer Academy was the best yet. The lights of Las Vegas may have called at night, but attendees were definitely interested in learning! There were several points during the event where attendees approached me to say that the array of information and speakers found at the Installer Academy was very valuable.

At the end of 2008, NOWRA had to do what many of you have done in the past several months—take a hard look at finances and make budget reductions. NOWRA Headquarters worked closely with the Executive Committee to make budget cuts, including lowered revenue expectations and a 20% reduction in the management fee. The result was a 2009 operating budget approved by the Board that is conservative but preserves core member benefits and NOWRA's continued ability to provide a national voice for the onsite industry.

NOWRA Headquarters assisted the Government Relations Committee in sending out letters to Congressional leaders promoting onsite as a viable option in rebuilding the nation's infrastructure. Please see this inset on this page for more information. The stimulus bill provides a rallying point for NOWRA members to get their voices heard to fund onsite projects through the bill. Keep an eye on your email inbox for monthly updates from NOWRA that highlight association activities, industry news and ways you can participate.

NOWRA Headquarters has been working closely with the Marketing/Communications Committee to develop promotional materials and conduct outreach for the upcoming Conference and Expo in Milwaukee, Wisconsin. The program developed by the Education and Conference Committees is exceptional, and the Wisconsin Onsite Water Recycling Association has been instrumental in its support. It will be exciting to host a conference with a "green" theme in a city that is leading the nation in their commitment to sustainability.

Though the economic climate is forcing people to carefully consider where they spend their money, we are hearing from members that the educational programs offered exclusively through NOWRA are well worth the cost. We hope you will agree when you join us in Milwaukee for a dynamic four days!

—JESSICA FINNEY, *NOWRA Executive Director*

NOWRA Urges Congress to Ensure Funding for Onsite Wastewater Treatment Systems

The passage of a federal stimulus bill will pave the way for funding a number of sustainable water and infrastructure projects. Go to www.nowra.org/newsreleases to read the letter NOWRA sent to Congressional Leadership advocating for the prioritization of funding for decentralized treatment systems in infrastructure building. Use that letter as a template to write your own legislator.

NOWRA also joined with industry and environmental stakeholders in supporting fiscal strategies for advancing sustainable approaches to water, stormwater and wastewater management. A collaborative letter, led by the Coalition for Alternative Wastewater Treatment and the Clean Water Fund, was sent to the U.S. Senate and House of Representatives Appropriations Committees. Go to www.nowra.org/newsreleases to read the letter and fiscal strategies white paper.

ONSITE INDUSTRY FEATURE

Resources from Waste

Creating Resilient Cities in Uncertain Times

By Wm. Patrick Lucey, Keynote Speaker, 2009 NOWRA Annual Conference

The United Nations Millennium Ecosystem Assessment report revealed a disturbing and persistent depletion of the Earth's natural capital and ecosystem services, and a rapid global increase in consumer-based standards of living. Coupled with a shift toward largely urban populations, this has led to unprecedented global pollution. There is now widespread concern amongst the world's scientific community that climate change, believed by many to be a result of rising GHG emissions, is adversely affecting global economies and has the potential for dramatic economic upheaval over the next few decades. There is a small community of scientists that suggests the extensive loss of riparian zones, wetlands and forested landscapes, consequent loss of sequestered carbon and carbon cycling, shifts in energy balance from latent to sensible heat (e.g., urban heat island effect), and other natural stabilizing feedback loops are also critical as regulators of climate change and may be under-estimated in current climate change models. At the same time that Southern Australia endures record heat waves, the snow pack in the Rockies is below normal and agriculture is threatened in many areas by a lack of water. Thus, a relevant question is whether the planet is heating up and drying out, or drying out and heating up?

Water is a finite resource which nature recycles constantly, yet modern cities are designed to use water only once before it is considered "wastewater". High quality, often highly treated and expensive, drinking water is used for everything. If we changed the design of our cities, to conserve and reuse water in a "fit-for-purpose" manner, more water could be left in the ground and in the streams to moderate our climate, and the enormous energy demand for pumping and treatment would be reduced. Recovering heat from sewage, and energy from bio-solids and organic waste, would further reduce the energy demand of our cities, reduce GHG emissions, increase local employment and reduce national dependence on foreign energy.

Peak oil, predicted to occur within the next decade, will have a significant effect on the manner, and associated costs, of maintaining and managing urban infrastructure. Three decades of extensive research suggest that a global shift is required in development and management paradigms for urban centers and that such changes can no longer be made in an incremental fashion. If urban design and management are to become sustainable, then the rate and scale of change must be sufficient to transform the function and structure of urban systems. The principles of industrial ecology, and associated whole system thinking, lie at the heart of a new approach developed for managing water, waste systems and energy, within an integrated resource recovery management model. As climatic conditions become less predictable and extreme weather becomes more common, and as the world economic crisis reveals how interdependent countries are, we must find adaptive strategies to increase the resilience of our cities to external, disruptive forces.

"Integrated Resource Management" (IRM) is one such adaptive strategy. At its core, it examines how and where water and energy are used and generated, and seeks to co-locate the supply with the demand. This co-location of supply with demand provides a new opportunity to generate revenue. Decentralized tertiary wastewater treatment produces heat, water, nutrients and bio-solids that can be reused rather than discharged into the environment. By capturing "waste" heat energy from sewage, Gotenburg Sweden, for example, has demonstrated that tens of thousands of homes can be heated at reduced cost to the occupants while generating revenue for the utility. Organic kitchen waste that would normally go to the landfill can be redirected to create syngas or biofuels, together with the solids from sewage. These "new" carbon neutral energy sources then displace fossil fuels, saving money and helping communities to meet GHG targets, while increasing energy supply flexibility and security.

IRM is about combining the components in a new way, with a different purpose. Its goal is to generate revenue and restore ecological systems while converting waste back into resources.

The achievement of sustainable and healthy urban environments will require designing water and waste systems in accordance with ecological principles of integration and the fundamental notion that nature has no wastes (liabilities), only resources (values). Therefore, the design and planning process must be guided not by accounting for the costs of addressing waste management, but by optimizing the benefits through a Green Valuation strategy. Through IRM, infrastructure is

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About the Author: Wm. Patrick Lucey, the President of Aqua-Tex Scientific Consulting Ltd. and Fidelis Resource Group Inc., is a senior aquatic ecologist with a background in resource management and political science. His specialties are managing water resources so that they add value to development projects, and demonstrating how maintenance and enhancement of ecological function can provide cost-savings on infrastructure and result in a healthier environment.

ONSITE INDUSTRY FEATURE

It's time to invest in next-generation decentralized technologies.

Truly Sustainable Water Infrastructure

By Valerie I. Nelson

The debate about the recently enacted federal economic stimulus package has renewed discussion about whether the United States should be investing billions of dollars more to rebuild our aging infrastructure. Water lines, sewer mains, and treatment plants, many built more than 100 years ago, are leaking, collapsing, and overflowing. Utilities wanted federal money to help fix these problems, but pressure to slim down the package quieted that discussion temporarily.

We have a golden opportunity to leapfrog into the future.

Here's another thought: Use the reality of deteriorated infrastructure as a rationale for investing in next-generation technologies and designs. There is a concept in asset management called "run to failure," where it is efficient to stop repairing the old system and eventually to replace it with something new. Since much of our water and wastewater infrastructure seems to be well on its way to breaking, we have a golden opportunity to leapfrog into the future—as developing countries such as China and India are beginning to do. Calling our essential infrastructure's failure an "opportunity" may seem counterintuitive, but if we had kept these systems in good shape, we actually would have fewer openings to shift to something new.

We all can find examples of running to failure in our own financial choices. Maybe we've let our old car get run down. We still change the oil regularly, and we keep the brakes working. Otherwise, we stop investing in the car and start to save every last dime for a new one—maybe a more efficient car this time, or a hybrid.

In the mid-1800s, we started piping clean water into cities and building drainage and sewer pipes to take away stormwater and wastewater. These systems have saved lives by reducing pathogen exposures and preventing periodic flooding.

But this big-pipe, centralized infrastructure is not sustainable over the long term. These municipal systems consume too much water, disrupt too many ecosystems, and use too much energy to move water and wastewater around. Growing populations, increasing land development, and climate change will make these problems much worse.

Next-generation designs come from a different engineering model: Use, treat, store, and reuse water efficiently on a smaller scale, and blend these designs into restorative water hydrologies. Some homeowners are already using water-efficient washing machines and recycling sink and shower water to irrigate lawns. Rain gardens and green roofs can collect stormwater and prevent flooding and sewer overflows. A new idea is to recapture energy and nutrients from wastewater.

In Seattle, Philadelphia, and Chicago, officials are designing water services in ways that also improve air quality, restore urban streams, and replace pavement with parks and urban gardens. Groups in Georgia and California are learning that more efficient next-generation systems that reuse water and replenish aquifers are critical for addressing deepening drought conditions. New subdivisions now can be built that need virtually no imported water.

New York City's Battery Park City has several new high-rises that treat stormwater runoff and wastewater and recycle it back into landscaping, cooling towers, and toilet flushing. Officials are offering incentives for such approaches because they understand that each gallon of fresh water they don't need to pipe in and each gallon of wastewater and stormwater they don't have to pipe out reduces pressure on the city's aging underground water and sewer systems.

It's nice to see these scattered models in the United States, but other countries' investments in next-generation approaches dwarf ours. Singapore and Abu Dhabi, as well as Shanghai, China, are devoting staggering amounts to research and demonstration projects for a sustainable water infrastructure, prompting U.S. companies and engineering firms to look abroad for the big next-generation markets.

Part of our problem is a legacy of well-intentioned rules and regulations, such as the Clean Water Act, which continue to support the use of wasteful and disruptive technology. Municipal utilities must comply with national permit requirements for old best practices that are costly and leave little room for creativity.

What will it take for our country to get on the path toward sustainable water infrastructure? For a start, we need to restore research funding so that we're leading the development of new technologies and capturing jobs and profits in the global marketplace. We should provide tax incentives that encourage builders, architects, and homeowners to adopt and implement these systems. We need to rewrite federal legislation so that the best—not the most conventional—technologies can be used in our cities and towns.

As for the "sunk" costs of our aging infrastructure? We need to think seriously about how to shift our national investments toward the future. It is important to keep old pipes working well enough at critical points to protect public health. But instead of using federal funds to repair and replace these pipes and treatment plants in the old way, it may be wiser to pivot federal investments into the new. ■

About the Author: Valerie I. Nelson is director of the Coalition for Alternative Wastewater Treatment (Gloucester, Mass.).

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ONSITE INDUSTRY FEATURE

The Regulator's Corner

By Edward Corriveau, P.E.

Green Technology is all the buzz these days but what does it mean to the average Joe's family and desire to build a new greener home? How does the green revolution integrate with water and waste-water and its infrastructure into a more palatable picture?

Before I begin painting a picture, I need to set some of the framework for this topic and also 'The Regulator's Corner' column. Just keep in mind that I am painting a picture from my vantage point, which probably is not the picture you would paint from your vantage point because the picture is based on your local site conditions and what makes sense for the local environmental conditions and regulations. I am certainly not speaking on behalf of or for any state perspective and particularly my home state of Pennsylvania. I am trying as many in the onsite industry are today; to just make sense out of the diversity of perspectives to better appreciate and adapt to our limited water resources.

Green Technology that is successful involves the main elements of Reduce, Reuse, Recycle and Rethink. I think that the rethink part may be harder to grasp than some of the others. So let's focus on rethink first and place this in context for those struggling with onsite issues.

What success is *depends on who defines it*. Who gets to define success is an important topic for Green Technology advocates, particularly for those who offer green products and services. Think about it; *how do you define success* in implementing onsite systems? Do you define it according to energy or water savings, demonstrated performance levels, cost payback, reliability, ease of maintenance or a combination of these? Or do you take that broader brush and consider the watershed and local water needs? Sometimes there are larger, overriding water quality goals on the palate. Moving beyond the triple bottom line folks and to explain this further, let us use an analogy of creating a painting that you and others will admire and that you want to display and hang in a particular setting.

To properly hang any painting a frame is needed that has four corners. For our understanding, let us consider four main parts of this frame; the designer, the installer, the management and continuing O&M entity and the regulator.

About the Author: Edward J. Corriveau, P.E., is the Chief of Planning Finance for the Commonwealth of Pennsylvania Dept. of Environmental Resources. He is a NOWRA Board Member, serving as a Compliance Monitor/Regulator Sector Representative.

The designer is generally concerned with *what* needs to be done and what can be approved. Getting approvals is often a challenge with new or green technology, so my suggestion is to look for the local or state programs that deal with the other three R's, those of Reduce, Reuse and Recycle. Find out and thoroughly understand the procedures for approval. Be aware there may be more than one program involved, such as the public health and the environmental protection or the building code programs. Remember one of the keys is to focus on defining success, which actually takes all four corners of the frame, each contributing their part.

In the green revolution, wastewater systems should become save-water systems.

Once the approvals are in place, the designer's oversight now transitions to the installer who is concerned with *how* a project gets done. The designer usually still remains an involved and accountable party until the project is completed and successfully operating. This begs an important question. Can you have success without having parties that are held accountable? *Who is accountable in the end is just as important as who defines success at the start.* It's always a good idea to write down what is expected and what performance levels are needed to sustain the success of any system. Develop contingencies that establish who's accountable for what and when. Not every new or greener onsite system succeeds at first, so build in some of contingencies in your design, contracting and implementation. Some of these performance levels are established in the regulator's permits while other performance control items are part of an experienced designer's responsibility of onsite systems. I'm not calling for experimenting with systems here but you must realize that failure to succeed is not an option. Any failure usually begins with poor communication and concludes with a breakdown of accountability. A successful onsite project and infrastructure requires predictable success. Onsite system designs may not be rocket science but you have to make them work for the long haul.

Once the system is installed it needs to operate successfully for it intended service life. Here's where a significant transition from designer and installer takes place (another leg of the frame) and accountability shifts more to the owner and their continued O&M responsible entity. What amount of management oversight, operation and maintenance is necessary to make the project a continued success? This accountability for

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Resources from Waste *(continued from page 5)*

designed in harmony with nature, such that net revenues from recovered resources are maximized, thereby minimizing costs to taxpayers—rather than minimizing the cost of managing wastes.

This regional-scale model of Integrated Resource Management (IRM) requires decentralized wastewater treatment and energy recovery designed around a business case (not a business plan). While the business case focuses on the role of private sector-based implementation, ecological systems and ecosystem services are priced within the financial model, thus valuing externalities that are usually un-priced. The model integrates water supply, liquid and solid waste systems, energy supply, transportation, land use, and building designs for a whole-systems approach to urban design. Potential benefits from implementing a region-wide IRM framework for sustainable communities include:

- Reducing GHG emissions by 25 percent (to below 1990 Kyoto levels);
- Providing carbon-neutral energy for government operations;
- Improving ecological health of urban watersheds;
- Supporting water conservation and reducing the need to develop new water supplies;
- Contributing to electrical energy conservation goals; and
- Reducing taxpayer contribution to new infrastructure.

None of the component parts of IRM are new. Indeed, many of the components are old technology, currently in use around the world. IRM is about combining the components in a new way, with a different purpose. Its goal is to generate revenue and restore ecological systems while converting waste back into resources. Traditional waste management is about disposing of a problem in order to maintain the status quo. The whole IRM system is designed to be zero waste, carbon neutral, ecologically restorative and financially profitable from the sale of energy, metals, and recycled water. Given that the extent of human activities rivals those of natural processes, a healthy ecology can only be based on sound economics, and vice-versa, for the undoing of one is surely the undoing of the other. ■

The Regulator Corner *(continued from page 7)*

continued operation and management oversight becomes even more critical for successful newer and greener technologies.

So where's the regulator in all this? Probably stuck in a corner somewhere! Seriously, *regulators are usually reactive to what is submitted not progressive in what green innovations could take place.* Their corner is to be definitive about the environmental and public health aspects of defining success. So the reality is that green innovations are first inspired in the marketplace by the average Joe wanting to do something he defines as successful for a multitude of reasons. *The regulator reviews a proposal to ensure it will be environmentally successful and that accountability exists in the long term so that the system is and will continue to be maintained and be successful.*

I'd have to say that the designer holds the brush throughout and plays the pivotal part of insuring a successful outcome. Once the system is built and operational then the accountability shifts to the continuing management entity who maintains the system from there. The designer is the painter with the management entity serving as the curator and hopefully not a restorer. The regulator should be more or less out of the picture if the designer and continuing management entity are both accountable and successful.

As to the integration of water and waste-water infrastructure, I think we need to rethink how we all approach or define wastewater. In a greener and more resource conscience society that values clean water our emphasis on wastewater and not save-water makes little sense.

Increased calls for changing the building codes to a more green building code, with the focus on Reduce, Reuse and Recycle, is starting to take shape. This is where most of the progress will be made in our onsite green infrastructure landscape. In the green revolution, wastewater systems now should become save-water systems, but more on that topic in future articles. ■

ONSITE INDUSTRY FEATURE

New Thinking and Research for Integrated Systems and Decentralized Management

By Jeff Moeller, Program Director, Water Environment Research Foundation

As populations increase and infrastructures age, more communities will face the difficult decision about how to address their wastewater treatment systems' limitations. Decentralized systems are no longer a stopgap for outlying areas, and centralized systems are no longer a one-size-fits-all solution. The industry is undergoing a paradigm shift that incorporates a wider spectrum of treatment solutions, where decentralized systems play an increasingly important role in protecting water quality and public health. It is clear that properly managed decentralized systems can be a viable long-term solution in a variety of circumstances.

Now more than ever, there is a need for research that improves the technology, aids in establishing reasonable regulatory guidelines, provides municipalities with the information they need to make informed decisions, and integrates the successes from both the decentralized and centralized arenas. With continued research, we can ensure improved performance, environmental safety, and increased use of these systems to meet water quality challenges in the years ahead. But there are still hurdles to cross.

Unfortunately, many of the existing onsite systems are failing, leading to groundwater contamination or other water quality problems and potentially endangering the health of both the environment and the public. Moreover, the effective, long-term use of onsite and cluster systems also relies on continued efforts to address misinformation and limited public knowledge about onsite systems, as well as legislative and regulatory constraints, lack of system management, inadequate engineering practices, and restricted access to funding.

The National Decentralized Water Resources Capacity Development Project (NDWRCDP) was created to address the needs for cost-effective water resource management in rural and suburban areas. The Water Environment Research Foundation (WERF) is leading a coalition of partners to provide research information and guidance relative to this topic. In addition to WERF, NDWRCDP partners include:

- National Onsite Wastewater Recycling Association (NOWRA)
- Coalition of Alternative Wastewater Treatment (CAWT)
- National Rural Electric Cooperative Association (NRECA)
- Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT)
- Electric Power Research Institute (EPRI)

With grant funding assistance from EPA, the NDWRCDP has completed about a dozen decentralized related research projects in the past two year (see table on next page). The

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Notice of NOWRA 2009 Annual Membership Business Meeting

When: 8:45–9:30 AM, Wednesday, April 8, 2009 • During the 18th NOWRA Annual Technical and Education Conference
Where: Meeting Room 202, Midwest Airlines Center, Milwaukee, WI

In accordance with Article III, Section 7 of the NOWRA Bylaws, all NOWRA members are formally notified through this communication, of the Annual Membership Meeting, scheduled to occur on Wednesday, April 8, 2009 at 8:45 am. The NOWRA 2009 Annual Membership Business Meeting will be held in Meeting Room 202, Midwest Airline Center, 400 W. Wisconsin Avenue, Milwaukee, WI 53203. All members are urged to attend and participate in this meeting.This notice was placed on the NOWRA website (www.nowra.org). Information will be updated as it becomes available.

Draft Business Meeting Agenda

1. Roll Call—A master membership list will be available
2. Reading of 2009 Annual Meeting Notice
3. Reading/distribution of the previous annual meeting minutes
4. President's Report
5. Secretary-Treasurer's Report
6. Executive Director's Report
7. Committee Reports
8. Other Business
9. Open Member Discussion
10. Adjournment

For additional information, please contact NOWRA Headquarters at 1-800-966-2942.

New Thinking and Research for Integrated Systems *(continued from page 9)*

publications and findings from these projects are available to the public at no charge. Visit www.ndwrcdp.org. Some of the products, such as "New Approaches in Decentralized Water Infrastructure," have been recently posted. This product can also be accessed directly at www.sustainablewaterforum.org.

Additionally, there are over two dozen ongoing decentralized research projects that will finish within the next twelve months. Thus, a wave of new information will be coming out from the program.

Visit the Decentralized Systems Knowledge Area on the WERF's website (www.werf.org/am**)** to keep up-to-date on the latest research news, products, and tools. For more information, contact Program Director Jeff Moeller at 703-684-2461 or jmoeller@werf.org.

NDWRCDP Recently Completed Projects

Title	Description
Fats, Roots, Oils, and Grease (F.R.O.G.) in Centralized and Decentralized Systems	Investigates optimal design, sizing, and operations & maintenance criteria for grease inceptors. Explains the characteristics of sewer blockages and identifies effective O&M practices.
Overcoming Barriers to Evaluation and Use of Decentralized Wastewater Technologies and Management	Addresses the barriers within the engineering community that prevent the evaluation and use of decentralized technologies and management as a comparable alternative to centralized wastewater systems.
Decentralized Wastewater Treatment O&M Service Provider Training Program	Develops educational materials for operations and maintenance practitioners to provide the training needed for certification.
Business Attributes of Successful Responsible Management Entities	Reviews successful and unsuccessful management models currently in place around the country, yielding a document that can be used by those developing a management system for decentralized wastewater systems.
New Approaches in Decentralized Water Infrastructure	Researches issues and alternatives at the intersection of government policy, economic market structures, and consumer preferences, including financing alternatives, "soft path" water quality protection, and innovative policy and regulatory structures.
Primary Treatment in Onsite Systems: Factors That Influence Performance	Determines what level of performance can be expected from septic tanks as primary treatment devices, considering system design, inputs, and other factors.
Long Range Planning for Decentralized Wastewater and Stormwater Treatment Research: Synthesis Report and Workshop	Reviews the current state of knowledge in the decentralized wastewater and stormwater community and produces a report that summarizes research findings and identifies needs; conducts workshop to determine research needs.
Analysis of Existing Community-sized Decentralized Wastewater Treatment Systems	Gathers and assesses data on the performance of established community-sized systems in comparison to design assumptions.
Quantifying Evaporation and Transpirational Water Losses from Greenroofs and Greenroof Media Capacity for Neutralizing Acid Rain	Provides information on the effectiveness of greenroofs for stormwater runoff reduction, in particular as relates to the rate of water loss (evapotranspiration) from a planted green roof as well as potential for greenroofs to neutralize acid runoff.
Pennsylvania Standards for Residential Site Development	Creates a set of standards in Pennsylvania which can also be adapted to other regions to efficiently update local ordinances to affect sustainable development as well as wastewater and stormwater management.
Hydrologic Bioretention Performance and Design Criteria for Cold Climates	Focuses on the development of standards and specifications that are required by bioretention systems to be used successfully in cold climates.
Glossary Project and Train the Trainer Program	Standardizes commonly used terms and definitions to facilitate the continued exchange of information; conducts train-the-trainer academies to present new training materials to instructors and develop their training skills.

CONSORTIUM OF INSTITUTES FOR WASTEWATER TREATMENT

in cooperation with

MISSOURI SMALLFLOWS ORGANIZATION

present the

NATIONAL INSTALLER CURRICULUM 4TH PILOT TRAINING EVENT

Liberty, Missouri • March 5–6, 2009

CIDWT is working cooperatively with NOWRA and NEHA to establish and communicate a set of minimum guidelines for the installation of onsite wastewater treatment systems. The curriculum is designed to support installer credentialing programs such as the NEHA Certified Installer of Onsite Wastewater Treatment Systems (CIOWTS) credential. CIDWT will conduct the last of four pilot training events using these materials in March 2009.

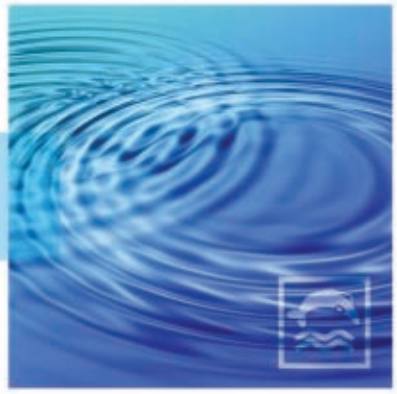
This course will improve your ability to:

- Effectively evaluate site conditions and system installation requirements when developing a contract.
- Review design plans and conduct site reviews to successfully develop bids and plan for construction.
- Evaluate site conditions with respect to OSHA construction safety practices.
- Use surveying practices to lay out the system, locate components and evaluate proper elevations.
- Assess site conditions relative to equipment selection and installation methods.
- Learn effective excavation, bedding, and backfilling methods to achieve stable, watertight components.
- Select and assemble pumping systems and properly adjust and verify control settings.
- Implement critical practices for installation of advanced treatment system components.
- Install soil treatment areas at the proper elevation using appropriate materials while maintaining natural soil conditions.

For information on registering for this valuable training, visit
www.mosmallflows.org
and click on *Seminars and Training*.

Note: The NEHA CIOWTS exam will be administered on Saturday, March 7, 2009, the day following the training. For information on this Exam, contact: Carol Newlin or Heidi Shaw at NEHA, 303-756-9090

Co-sponsors: U.S. Environmental Protection Agency
Water Environment Research Foundation
National Decentralized Water Resources Capacity Development Project
National Onsite Wastewater Recycling Association
National Environmental Health Association
USDA-Cooperative State Research, Education, and Extension Service (CSREES)



ONSITE
The Sustainable Wastewater Opportunity
April 6-9, 2009 • Milwaukee, WI
NOWRA 18th Annual Technical Conference & Expo

NOWRA is your natural resource for education, networking and industry professionalism.

A special thanks to our local host, the Wisconsin Onsite Water Recycling Association (WOWRA).

In 2005, Mayor Barrett brought together a group of over 80 Milwaukeeans to map the future course of Milwaukee's efforts to be "green." and make the region a national leader in the emerging green economy. Shown above the Mitchell Park Domes, the Midwest Airlines Center rotunda, and the Milwaukee Art Museum at right.

The National Onsite Wastewater Recycling Association (NOWRA) presents our 18th Annual Technical Education Conference and Expo in Milwaukee, Wisconsin on April 6-9, 2009.

The NOWRA annual conference serves as the premier conference for the conveyance of new research, regulations and policy, experience and practices in the decentralized wastewater industry.

Onsite: The Sustainable Wastewater Opportunity

Onsite /decentralized wastewater treatment has always been a "green" solution for water recycling. NOWRA is proud to promote onsite systems as a cost-effective, environmentally safe and long-term alternative for wastewater treatment services.

Valuable Educational Sessions

- The "Greening" of Onsite Wastewater Treatment
- Watershed Management Strategies and Applications
- Wastewater Reuse Case Study
- Recent Trends in Decentralized Wastewater Management
- Small Community Wastewater Treatment
- Nitrogen Treatment, Research and Policy
- Innovative Products, Technologies, and Solutions
- Onsite System Performance, Reliability & Sustainability
- NOWRA's premier program, "The Basics of Onsite Systems –A to Z"
- Midwest Regional Code Forum
- Weathering the Economic Storm: Business Survival

NOWRA will host a pre-conference workshop on April 6th focusing on Pharmaceuticals and Personal Care Products in Wastewater, Surface Water, and Groundwater.

A full day's line up of speakers will present the latest research on this important issue. Speakers will cover what chemicals are being found, how effective decentralized systems are at removing them and what is known about the human and aquatic impacts from them.

At the end of the session there will be a speakers roundtable to answer questions from the audience and to recommend actions that NOWRA and others can take to address the issue.

Get out of the "office" and into the green. Hear new perspectives. Learn new skills. Meet new people and return to work with a vision for onsite sustainability.

NOWRA is excited to be in one of the leading U.S. cities in the green movement. Milwaukee creates opportunities in the green sector for economic growth, investing in both infrastructure solutions and a broad environmental sustainability initiative, called *Green Milwaukee*. Milwaukee has gone from "Brew City" to "New City" and in so doing has won over visitors from throughout the world. It's no wonder that publications such as the *Los Angeles Times* and the *New York Times* have recently taken notice with rave reviews. From the magnificent Santiago Calatrava-designed expansion of the Milwaukee Art Museum on the Lake Michigan waterfront to the newly opened Harley-Davidson Museum to its impeccable array of neighborhoods, arts and cultural amenities, Milwaukee has become a premier destination for visitors.

NOWRA Pharmaceutical Personal Care Products Symposium | Monday, April 6

Experts in the field will address the issue of emerging contaminants impacting the environment and advance your understanding of the contaminants in onsite wastewater treatment systems.

- Review what has been learned about PPCPs and other chemicals of concern after a decade of increasing scientific research and what questions remain unanswered.
- Find out what is known and unknown about the health effects of emerging contaminants.
- Hear practical strategies, recommended actions and policy solutions to mitigate the environmental impact of pharmaceuticals and personal care products in wastewater, surface water and groundwater.

This pre-conference symposium requires separate registration. The nominal cost for the symposium is $125.

Tour of Four Decentralized Systems in Milwaukee Area | Monday, April 6

During this rich, full day learning opportunity, discover how some onsite wastewater professionals have answered client needs, solved design and regulatory problems, worked around soil and site issues and still met wastewater treatment goals. The tour highlights four onsite wastewater treatment sites. On the way to the first site, hear Roman Kaminski from the Wisconsin Department of Commerce talk about Wisconsin regulations. Also listen to Jerry Tyler, UW Emeritus Professor of Soil Science, discuss soil and environmental issues. James Converse, UW Emeritus Professor, Biological Systems Engineering will talk about history of the Wisconsin Mound and other pertinent topics. Follow the discussions and make notes about the sites in a guide book provided to you.

The first stop demonstrates a community's desire to go green and provide a hands-on learning center for a 1000 student high school. Wetlands are used with differing plant communities and the wetland aeration is provided by an interesting renewable energy source.

Next stop – Cabela's retail store and deli. The wastewater system design for a large Cabela's store is dynamic and may change as more is learned about the quality of the wastewater generated. Tour the onsite system where domestic wastewater and the wastewater generated by a deli are currently segregated. The tour group will take time for lunch at the deli and shopping at the "World's Foremost Outfitter."

The tour continues on to a 100 home subdivision with septic tanks and pump chambers at each home going to ATU units followed by 6 mounds. **The final stop** is a Business Center with a number of different businesses including restaurants. See how the wastewater from the separate sources is treated prior to mixing. We look forward to having you on the tour. Sign up early to assure you will have a seat. Bus time between sites is very short. Early April can be cool, maybe cold, and it will be wet. Be sure to bring warm clothing and appropriate footware. **The nominal cost for the tour including lunch at Cabela's Deli is $95.**

Milwaukee Wastewater Treatment Plant Tour | Tuesday, April 7

Jones Island Water Reclamation Facility of the Milwaukee Metropolitan Sewerage District is a 330 mgd facility that - along with South Shore Water Reclamation Facility (300 mgd) - processes wastewater from 28 communities in southeastern Wisconsin. A variety of beneficial reuse processes occur at the two plants, ranging from sludge digestion to produce methane that fires the turbines, to production of Milorganite, a high-quality fertilizer marketed around the country. Veolia Water provides operations and maintenance services to MMSD for the two facilities and conveyance system. This is the largest public-private wastewater treatment partnership in the U.S., and one of the few deep tunnel storage systems in the world. For safety purposes everyone touring the Jones Island Water Reclamation Facility should wear closed-toe shoes and dress appropriately for the weather, as much of the tour is outside.
The nominal cost for the tour is $49.

Reception at Milwaukee Public Museum | Wednesday, April 8

One of the country's premier natural history museums, renowned for its exhibits, collections and research, the Milwaukee Public Museum is the backdrop for mingling with colleagues and friends as NOWRA hosts Wednesday night's reception . Attendee's will have full access to the first floor exhibits, including the Streets of Old Milwaukee, The Third Planet, Jack Puelichers Butterfly Garden and the Rain Forest. These exciting exhibits and more will be yours to explore as you enjoy refreshments. From its modest beginnings in 1882, the Milwaukee Public Museum now houses more than 6 million specimens. **Be our guest—entry and refreshments provided with full conference registration. Experience a world of difference at the Milwaukee Public Museum!**

Midwest Regional Code Forum | Thursday, April 9

A number of states in the Upper Midwest are revising or have recently revised their onsite wastewater treatment system rules. Despite having many of the same site and soil conditions, similar climates, and the same goals to protect human health and water quality, the disparity of program rules between the states is greater than seems justified based on science. The impacts that the disparity in rules and practices have on our industry are significant. Manufacturers, designers, and installers are confounded by the differences between permitted practices that often occur merely by crossing a political boundary. New but proven technologies and practices may be approved in one but denied in another. Design parameters may differ even though conditions and applications are identical. Approvals of new products and new models slow adoption of new equipment and technologies. Certification and licensing requirements mean multiple training events and exams. The results are confusion, disgruntlement, and disillusionment among all involved often including the regulators themselves. Is it necessary? Can we justify it? **This roundtable of invited federal, state, and local officials will address many of these issues in an open discussion.**

Topics will include:

- What triggers rule revisions and how is technical input utilized?
- How our rules can impact regulators, manufacturers, suppliers, designers, installers, and owners.
- What is the status and acceptance of NOWRA's Model Code Framework?
- What is holding our industry back from adopting performance-based rules?
- What are the barriers to collaborating on technical requirements, licensing programs, and product approvals between states and how could these barriers be overcome? Would overcoming them help or hurt?
- What can NOWRA do?

The goal of this roundtable is to consider the question of whether regional rules would be possible and practical through small group discussions. Pros and cons of the issue will be sought and how identified barriers could be overcome to allow regional technical requirements to be acceptable. The roundtable outcome is expected to result in a preliminary roadmap marking a way to better and more consistent rulemaking. **Included with full conference registration.**

Weathering the Economic Storm: Business Survival | Thursday, April 9

Manufacturers, designers, and installers are experiencing dramatic cutbacks in work. Relying so much on new home construction, the burst in the bubble has left many in the onsite industry looking for new opportunities to help their businesses survive. This session aims to help NOWRA members survive the economic downturn. A panel of manufacturers, installers, O&M providers and policy advocates discuss strategies and lessons learned on funding streams, new markets, state policies and business practices. **Walk away from this session with lessons and strategies that will keep your business afloat in the current economic storm. You don't want to miss this critical and timely information! Included with full conference registration.**

April 7 & 8 - General Sessions 1 & 2

Onsite: The Sustainable Wastewater Opportunity

WASTEWATER TREATMENT SUCCESSES AND CHALLENGES IN MILWAUKEE ***Mayor Tom Barrett (Invited) and Kevin Shafer, MMSD***

Protecting Lake Michigan and the rest of the Great Lakes is vital to the long-term sustainability of the Milwaukee region. In order to protect the Great Lakes, it is imperative that we manage the sources of water pollution including air deposition, sewage, and storm water runoff. But changing perceptions, regulatory climates, and technology require that any approach that is adopted should be flexible and should be adaptable. The Milwaukee Metropolitan Sewerage District's (MMSD) experience highlights this adaptive approach to cleaning our water.

THE ROLE OF DISTRIBUTED APPROACHES IN SUSTAINABLE WATER RESOURCE MANAGEMENT ***Victor D'Amato, TetraTech***

A conceptual framework for considering integrated resource management will be presented, along with recommendations for advancing state policy and sustainable design practices among professionals. The primary author is the Principal Investigator for a Water Environment Research Foundation (WERF) project entitled, "When to Consider Distributed Systems in an Urban and Suburban Context." The objectives of this WERF project are to identify and analyze appropriate examples of distributed water management systems, define their key attributes, and develop decision support instruments that help decision-makers and stakeholders better determine whether or not distributed systems would be a viable solution in their community.

RESOURCES FROM WASTE - CREATING RESILIENT CITIES IN UNCERTAIN TIMES ***Patrick Lucey, Aqua-Tex Scientific Consulting Ltd.***

The model of Integrated Resource Management (IRM) requires decentralized wastewater treatment and energy recovery designed around a business case. This presentation examines the economic argument for changing the design of our cities, dramatically reducing GHG emissions and restoring our urban ecology, all by changing the way we view water, manage waste and generate revenues.

US EPA MEMORANDUM OF UNDERSTANDING (MOU) PARTNERS WITH WATER QUALITY AND DECENTRALIZED WASTEWATER INTERESTS: PAST ACCOMPLISHMENTS, FUTURE OPPORTUNITIES ***Joyce Hudson, USEPA***

THE BUSINESS OF NOWRA ***Thomas Groves, NOWRA President***

In accordance with Article III, Section 7 of the NOWRA Bylaws, all NOWRA members are formally notified through this communication, of the Annual Membership Meeting, scheduled to occur on Wednesday, April 8, 2009 at 8:45am. The NOWRA 2009 Annual Membership Business Meeting will be held in Meeting Room 202, Midwest Airline Center, 400 W. Wisconsin Avenue Milwaukee, WI, 53203. All members are urged to attend and participate in this meeting. This notice was placed on the NOWRA website (www.nowra.org), information will be updated as it becomes available. For additional information, please contact NOWRA Headquarters at 1 (800) 966-2942.

A Sampling of Educational Sessions

Visit www.nowra.org to view the full agenda and line up of dynamic and experienced speakers.

RECENT TRENDS IN DECENTRALIZED WASTEWATER MANAGEMENT

Valerie Nelson, Ph.D., Coalition for Alternative Wastewater Treatment

In 2000, a "Market Study" on decentralized wastewater management was issued by Valerie Nelson, Stephen Dix, and Frank Shephard. The study concluded that the most likely future of the advanced onsite system and management approach was in concentrated use in areas of the country where drinking water or natural resources are threatened, such as in sole source aquifer areas, around lakes, and near coastal estuaries and shellfish beds. This paper will report on follow-up research in 2007, in particular an analysis of how well the earlier study predicted the short-term opportunities for expanded use of advanced onsite and cluster system technologies and management; which recommendations for policy and other initiatives were followed; and whether or not the driving forces in the market that were identified in the earlier study appear to have been the significant drivers.

REUSE AS A TOOL IN TOTAL WATER MANAGEMENT ***Robert Rubin, Ph.D., Biological and Agricultural Engineering Department at North Carolina State University and McKim and Ree, a consulting engineering firm in Raleigh, NC***

Water is Water. Water varies in quality from source to source, but water is water. Unquestionably water containing domestic, agricultural and industrial waste is harmful to public health and the environment, but when can water be reused with minimal risk? Federal and state agencies have described both water quality parameters and process requirements to necessary to define reclaimed water. The purposes of the paper proposed are to 1.) describe general water quality and process requirements associated with reuse efforts; and 2.) describe reuse effort as decentralized component of local infrastructure.

A Sampling of Educational Sessions

THE TRUE COST OF SUSTAINABLE ONSITE TREATMENT SYSTEMS

Colin Bishop, R.S., Bord na Mona Environmental Products U.S. Inc.

Over the last twenty years, a proliferation of new onsite treatment technologies has taken place. At the same time, many states have updated their regulations with more stringent requirements for on-lot systems. Because of these factors and a building boom, the onsite treament system market has seen tremendous growth. The focus on treatment system selection has become centered on the upfront cost or "price" of the system. This presentation focuses on different costs that need to be analyzed when selecting a system including: up-front cost, operational cost, environmental cost and public health cost. All of these costs must be analyzed for the future sustainability of onsite systems.

EFFECTIVENESS OF DOMESTIC WASTEWATER TREATMENT TECHNOLOGIES IN THE CONTEXT OF THE NEW CONSTRAINTS IMPOSED BY LIFESTYLE CHANGES IN NORTH AMERICAN FAMILIES

Roger Lacasse, PremierTech Environment inc.

Over the past two decades, family lifestyles have undergone major changes. Such lifestyle changes all have an impact on the flow of wastewater from individual dwellings. Nowadays, intermittent (stop/start) and peak flows can be observed not only in secondary or seasonal dwellings, but increasingly in main residences. This paper will present a review of the various existing standards, the performance observed in real-life situations, the evolution observed in the last two years in Europe (Veolia protocol) and Canada (new BNQ Canadian Standard), and the changes needed to protocols so that certified technologies can ensure protection of the environment and water resources under conditions imposed by current lifestyles.

IMPLEMENTING A PERFORMANCE BASED CODE

Bruce Lesikar, Ph.D., Texas AgriLife Extension Service

Performance based codes are the only effective method to regulated commercial facilities. Commercial facilities have wastewater with extremely variable characteristics. The designer, regulator and maintenance provider have a limited ability to select, size, operate and maintain a functional onsite wastewater treatment system unless the user is interested in having an effective treatment system. An effective approach to implementing a performance based regulatory system will be discussed. The responsibilities of the various parties will be described with respect to implementing a performance based system. The current frustration within the prescriptive based regulatory process is the lack of responsibility by the user for their wastewater characteristics. An approach to establishing the responsibility of the user will be presented.

REUSING TRUCK STOP SEWAGE FOR TOILETS AND TRUCK WASHING

Craig Jowett, Ph.D., P. Eng., Waterloo Biofilter Systems

These case studies are for two truck stops where sewage is reused for toilets or truck washing and irrigation. Because of busy restaurants, particular attention was made to maintenance of grease traps or the use of a 'dead end' holding tank for kitchen waste. The proposal was to reuse it as much as possible for truck washing and irrigation, and minimize disposal into the property's stormwater pond.

NO NET DISCHARGE WASTEWATER COLLECTION, TREATMENT AND DISPERSAL SYSTEM – LARGE COMMERCIAL / RETAIL DEVELOPMENT, MALIBU, CA

Pio Lombardo, P.E., Lombardo Associates, Inc.

A project that demonstrates that decentralized distributed wastewater systems can be as effective as centralized facilities in achieving the accepted limit of technology for nitrogen removal, treats for emerging contaminants, and can achieve standards for unrestricted water reuse, with no net discharge will be described. The large commercial / retail development consists of (11) commercial buildings comprising 132,000 square feet of mixed retail and offices, and two (2) 175 seat restaurants on a 15.17 acre site.

"I DIDN'T KNOW MY DEALER COULD DO THAT!": THE EQUIPMENT PROVIDER'S ROLE IN QUALITY CONTROL OF DECENTRALIZED WASTEWATER SYSTEMS

David Cotton, P.E., Wastewater Technologies, Inc

Communities that invest in decentralized wastewater systems, and designers who design them, often underestimate what a wastewater equipment dealer can do. WTI, an equipment dealer in upstate New York, presents two case studies that show the value-engineering and troubleshooting services that a dealer can provide. Without poaching on the prerogatives of the designer, a knowledgeable equipment provider can help ensure that the system is correctly and economically designed, installed, and started up.

Make your Hotel Reservation at the Hilton City Center, Milwaukee

Online at www.nowra.org or call 1-800-HILTONS (1-800-445-8667)
NOWRA Conference Room Rate $123.
Cut off Date for Conference Room Rate is March 8, 2009.
Milwaukee Hilton City Center, 509 W. Wisconsin Avenue,
Milwaukee, Wisconsin 53203 • 1-414-271-7250

Ground Transportation: Discount shuttle service between the Milwaukee Mitchell (MKE) airport and the Milwaukee Hilton is provided by GO Airport Connection at the rate of $12 one-way.

REGISTRATION FORM

Register online at www.nowra.org

Mail this form with check (payable to NOWRA) or fax your registration with credit card information. Registrations are only accepted with full payment in U.S. dollars. After **April 1, 2009**, registrations are only accepted onsite at the Conference. **Cancellation Policy**: All cancellations must be submitted in writing to NOWRA Headquarters by **March 16, 2009** and will be refunded less a $50 administrative fee.

Please print the following information

Membership Number _____ Full Name _____

Name for badge (if different from above) _____

Company/Organization _____

Street Address _____

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

Email: _____ Phone Number: _____

CONFERENCE REGISTRATION

❒ **Full Conference** (Tuesday-Thursday) *Does not include field trips, but does include receptions.*

- ❒ NOWRA Member: $395 (by 02/27/09) • $495 (after 02/27/09) $_____
- ❒ Non-NOWRA Member: $495 (by 02/27/09) • $595 (after 02/27/09) $_____
- ❒ International Colleague (excludes Canada): $395 (by 02/27/09) • $495 (after 02/27/09) $_____

❒ **Regulator (only) – Full Conference** (Tuesday-Thursday)

- ❒ NOWRA Member: $295 $_____
- ❒ NOWRA Non-Member: $395 $_____

❒ **Student Conference/Membership** *(Does not include field trip, or receptions):* $150 $_____

Please mail in verification of student status.

❒ **Daily Conference Rate:** ❒ Tuesday ❒ Wednesday ❒ Thursday $_____

- ❒ NOWRA Member: $250 (by 02/27/09) • $350 (after 02/27/09)
- ❒ Non-NOWRA Member: $350 (by 02/27/09) • $450 (after 02/27/09) $_____
- ❒ Regulator (NOWRA Member): $225 $_____
- ❒ Regulator (Non-NOWRA member): $325 $_____

❒ **Exposition Pass** *(Access to Exposition Hall Only):* $50 $_____

❒ **Local Residents Exposition Pass**: $25 *(For residents of WI, MI, IN, IA, MN & IL. Access to expo hall Wednesday only) (WOWRA & WPCA Members have free access to expo hall on Wed.)* $_____

SOCIAL EVENTS/CONFERENCE TOURS/PRE-CONFERENCE

❒ **Monday Pre-Conference** *(Separate from the Full Conference Fee):* $125 $_____

❒ **Monday Tour of Decentralized Systems in Milwaukee** *(NOT Included in full conference fee):* $95 $_____

❒ **Tuesday Exposition Reception** (Included in full conference fee): $40 $_____

❒ **Tuesday Milwaukee Wastewater Treatment Plant Tour** *(NOT Included in full conference fee):* $49 $_____

❒ **Wednesday Offsite Reception** (Included in full conference fee): $65 $_____

MISCELLANEOUS

❒ **Spouse/Guest** (Spouse/Guest Name) _____: $125 Per Person $_____

❒ **2009 NOWRA Membership Fee:** $140

Only for those individuals who reside in a state without an affiliated state association. $_____

❒ **I plan to attend the Onsite A to Z Systems Course** *(Included in full conference fee, but **ADVANCED SIGN UP IS REQUIRED**)*

Total Amount Enclosed **$_____**

PAYMENT INFORMATION (NOWRA EIN# 593099430)

❒ My check in the amount of $_____ is enclosed (Check # _____)

❒ Please charge my: ❒ Visa ❒ MasterCard Credit Card Number _____

Exp. Date: _____ Security Code_____ Name on Card _____

Billing Address _____ City _____ State _____ Zip_____

Signature (Required) _____

18th Annual Technical Conference – April 6-9, 2009

NOWRA offers Online Registration at www.nowra.org/annual_conference

Profile Questions

Please take a moment to answer these short profile questions.
Your input will help us better serve NOWRA conference attendees in the future!

1. How many times have you attended the Annual Conference? Circle one.

a. First time
b. 1-5 years
c. 6-10 years
d. 11+ years

2. Please check all that apply to you:

☐ Installer
☐ Designer
☐ Manufacturer
☐ Builder
☐ Regulator
☐ Student
☐ Service Provider
☐ Educator
☐ Other

_____

3. What are your main reasons for attending the Annual Conference ? Check all that apply.

☐ Variety of Educational Topics
☐ Continuing Education Units (CEUs)
☐ A-Z Training Track
☐ Pre-Conference Symposium
☐ Exhibits/Trade Show
☐ Event Location
☐ Other (please specify)

_____

4. How did you find out about the Annual Conference? Check all that apply.

☐ NOWRA website
☐ Onsite Journal from NOWRA
☐ Direct Mailing from NOWRA
☐ NOWRA broadcast email
☐ State Association Newsletter
☐ State Association Website
☐ CIDWT (Consortium)
☐ Local licensing/CEU agency
☐ Other (please specify)_____

5. Are you a member of a state association?

a. Circle one. Yes No

b. If **yes**, which one?

_____

c. How long have you been a member? _____ Years

d. If **no**, are you NOWRA member at the national level?
Circle one. Yes No

e. How long have you been a member? __years

6. How far will you be traveling to attend the Annual Conference? Circle one.

a. 1–50 miles
b. 51–150 miles
c. 151–500 miles
d. 501–1,000 miles
e. 1,001–2,000 miles
f. 2,000+ miles

7. How many other professional meetings do you attend each year? Choose one.

a. I don't attend other professional meetings
b. 1–2
c. 3–5
d. 5+

8. Which events or activities do you plan to participate? Check all that apply.

☐ General Sessions
☐ Breakout Sessions
☐ Roundtable/Forum
☐ NOWRA Business Meeting
☐ Affiliate Meeting
☐ Exhibit Hall
☐ Networking
☐ None

9. Continuing Education / Licensure - Please indicate what governing body you are licensed through or through which you maintain CEUs.

_____
_____

NOWRA's 18th Annual Technical & Education Conference Overview

Milwaukee, Wisconsin • April 6 - 9, 2009

Hilton Hotel/ Midwest Airlines Convention Center

(Preliminary Schedule - Subject to Change)

Sunday, April 5 | All sessions at the Hilton Hotel

9:00 AM - 5:00 PM	**NOWRA Board Meeting – Oak Room**

Monday, April 6 | All sessions at the Hilton Hotel

7:30 - 10:30 AM	**Registration Open and Continental Breakfast Available for Symposium & Tour Participants – Wright Foyer**
12:00 - 6:00 PM	**Registration and Set-Up for Exhibitors – Convention Center, Exhibit Hall D**
10:00 AM - 12:00 PM	**NOWRA Finance Committee Meeting – Walker Room**
12:00 - 2:00 PM	**NOWRA Marketing Committee Meeting – Walker Room**
2:00 - 4:00 PM	**NOWRA Technical Practices Committee Meeting – Walker Room**
4:30 - 6:00 PM	**NOWRA Education Committee Meeting – Walker Room**
5:30 - 8:30 PM	**State Affiliate Meeting – Mitchell Room**

8:30 AM – 5:00 PM	**I. Pharmaceutical and Personal Care Products (PPCP) Symposium Agenda — Wright Ballroom in Hilton Hotel**
9:00 – 9:15 AM	**Welcome and Introductory Remarks** Mark Hooks R.S., C.P.M., *NOWRA Government Relations Committee Chair*
9:15 – 10:15 AM	**The Pharmaceutical and Personal Care Products (PPCP) Issue a Personal Prospective** Al Alwan, *USEPA Region V*
10:15 – 10:30 AM	**Break with Refreshments Provided**
10:30 – 11:30 AM	**Pharmaceuticals and Personal Care Products in the Environment: Questions Answered and Asked After a Decade of Research,** Herbert T. Buxton Ph.D., *Toxics Substances Hydrology Program Coordinator, U.S. Geological Survey*
11:30 AM – 1:00 PM	**Lunch (on your own)**
1:00 – 2:00 PM	**A Synopsis of the Health Risks Associated with the Levels of Pharmaceuticals and Personal Care Products Found in the Environment Mark Hooks R.S., C.P.M.,** *NOWRA Government Relations Committee Chair*
2:00 – 2:15 PM	**Break with Refreshments Provided**
2:15 - 3:30 PM	**Endocrine-Disrupting Compounds and Other Trace Organic Contaminants in Onsite Wastewater Systems, Robert L. Siegrist,** Ph.D. and Kathleen E. Conn, *Colorado School of Mines*
3:30 - 5:00 PM	**Panel Discussion: Questions from the Audience and a Solicitation of Ideas on How NOWRA can Have a Positive Influence Regarding Pharmaceuticals and Personal Care Products**

II. Field Trip

8:00 AM - 5:00 PM

Tour of Four Decentralized Systems in Milwaukee Area, Jim Converse & Jerry Tyler

1. 100 home subdivision with septic tanks and pump chambers at each home going to ATU units followed by 6 mounds

2. A commercial development with a mound receiving ATU effluent

3. A high school with a constructed wetland and mound system

4. Cabalas with ATU and drip distribution system

NOWRA's 18th Annual Technical & Education Conference Overview

Milwaukee, Wisconsin • April 6 - 9, 2009

Hilton Hotel/ Midwest Airlines Convention Center

Tuesday, April 7 | All sessions at the Convention Center

6:30 – 8:00 AM	**Prayer Breakfast - Open Invitation – Room 201 B in Convention Center**			
7:00 - 9:00 AM	**Exhibitor Set-up – Convention Center, Exhibit Hall D**			
7:00 - 9:00 AM	**Registration Open (outside Exhibit Hall D) and Continental Breakfast Available in Registration Area – outside Rooms 201-204 in Convention Center**			
Morning Sessions	**III. General Session 1 (Rooms 202 ABC) - Onsite: The Sustainable Wastewater Opportunity**			
8:00 - 8:30 AM	**New Challenges and Opportunities for NOWRA and the Onsite/Decentralized Industry in These Trying Economic Times** Thomas Groves, *NOWRA President*			
8:30 - 9:15 AM	**Resources from Waste - Creating Resilient Cities in Uncertain Times** Patrick Lucey, *Aqua-Tex Scientific Consulting Ltd.*			
9:15 - 10:00 AM	**Wastewater Treatment Successes and Challenges in Milwaukee** Mayor Tom Barrett and Kevin Shafer, *Milwaukee Metropolitan Sewerage District*			
10:00 - 10:45 AM	**The Role of Distributed Approaches in Sustainable Water Resource Management** Victor D'Amato, *TetraTech*			
10:45 AM - 12:30 PM	**Exhibition Hall Opens** • Free Time • Poster Discussions - 11:30 - 12:30 **– Exhibit Hall D**			
12:30 - 1:30 PM	**Lunch provided in Exhibition Hall**			
Afternoon Sessions	**IV. NOWRA Decentralized Systems Overview: A to Z — RM 201 A**	**V. Reuse — RM 201 B**	**VI. Small Community Wastewater Treatment— RM 201 C/D**	**VII. Milwaukee WWTP Tour**
1:30 - 2:15 PM	**The Evolution of Decentralized Wastewater Treatment Philosophy** Bruce Lesikar	**EcocyclET- The New Green Paradigm for Reuse** David Del Porto	**SW Leech Lake Inventory & Assessment Project** Brent Rud	**Milwaukee WWTP Tour** **Jones Island Water Reclamation Facility** - processes wastewater from 28 communities (330 mgd) in southeastern Wisconsin **Milorganite Production** - a high quality fertilizer marketed around the country
2:15 - 3:00 PM	**Wastewater Chemistry, Biology & Characteristics** Jan Hygnstrom	**Effluent Disposal by Injection Well as a Mechanism for Efficient Ground Water Recharge** Greg Guthrie	**Helping Small Minnesota Communities Solve Their Wastewater Issues** Doug Malchow	
3:00 - 3:45 PM	**Soils and Site Evaluation Overview** Randy Miles	**Re-using Truck Stop Sewage for Toilets and Truck Washing** Craig Jowett	**Community Wastewater Treatment: The Preparation and Use of a Community Assessment Report** Laurie Brown	
3:45 - 4:30 PM		**No Net Discharge Wastewater Collection, Treatment and Dispersal System – Large Commercial / Retail Development, Malibu, CA** Pio Lombardo	**Status of Watersheds in the GOASO Forest District: Sustainable Management through a Participatory Approach** Nuhu Sulemana	
4:30 - 6:30 — Opening Reception in Exposition Hall with Hors d'oeuvres and Refreshments Provided - Poster Discussions (4:30 - 5:30)				

Wednesday, April 8 | All sessions at the Convention Center

7:00 - 9:00 AM	Registration Available and Continental Breakfast Available in Exhibition Hall – Convention Center, Exhibit Hall D			
9:00 AM - 3:30 PM	Local Professional Open House - *EXPO Hall Pass or Special Invitation only* – Convention Center, Exhibit Hall D			
8:00 – 10:00 AM	**General Session 2, Onsite: The Sustainable Wastewater Opportunity — Rooms 202 ABC**			
8:00 - 8:45 AM	**Pharmaceuticals and Personal Care Product Concerns in the Onsite World** Mark Hooks, *NOWRA Government Relations Committee Chair*			
8:45 - 9:30 AM	**The Business of NOWRA** Thomas Groves, *NOWRA President*			
9:30 - 10:00 AM	**US EPA Memorandum of Understanding (MOU) Partners with Water Quality and Decentralized Wastewater Interests: Past Accomplishments, Future Opportunities** Joyce Hudson, *USEPA Office of Wastewater Management*			
10:00 - 10:30 AM	**Break with Refreshments Provided**			
10:00 - 12:00 PM	General Meeting of the Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT) - Pabst Room - Hilton Hotel			
Breakout Sessions	**V111. NOWRA Decentralized Systems Overview: A to Z — RM 201 A**	**IX. Nitrogen: Treatment, Research and Policy — RM 201 B**	**X. Innovative Products — RM 201 C**	**XI. Milwaukee WWTP Tour— RM 201 D**
10:30 - 11:15 AM	**Water Movement in Soil & Application of Soil Surveys** David Lindbo	**An Analytical Model for Prediction of Groundwater Plumes Originating from Onsite Wastewater Systems** John McCray	**From Theory to Reality: After 8 years of Ecoflo Peat Replacement – Characterization Results and Challenge of Finding New End Uses** Marie-Christine Belanger	**CIDWT Installer Curriculum Program** Bruce Lesikar
11:15 AM - 12:00 PM		**Analyzing Wastewater - N and P Concentrations in Soil Treatment Units Using Multivariate Statistics** Assaf Wunsch	**Advanced Pressurized Drainfield Design & Analysis** Thomas Kallenbach	**A Model Quality Installation Assurance Program to Serve Onsite End-Users, Vendors and Practitioners** Ralph Benson
12:00 - 1:00 PM	Lunch Available for Purchase in Exhibition Hall – Convention Center, Exhibit Hall D			
Afternoon Sessions	**RM 201 A**	**RM 201 B**	**RM 201 C**	**RM 201 D**
1:00 - 1:45 PM	**Septic Tank Overview: Function, Design, Construction, Inspection and Troubleshooting** John Buchanan	**Watershed Nitrogen TMDL Management with Decentralized Innovative Solutions** Pio Lombardo	**SuperCharged Fixed Film is SMART Treatment Choice for High Organic Loads** Kenneth Neu	**Continuing to Advance the Onsite Industry in Nebraska** Jan Hygnstrom
1:45 - 2:30 PM		**Recirculating Gravel Filter Modifications for Nitrogen Reduction** Rick Apfel	**Innovative Repair of a Failed Onsite System Treating High Strength Wastewater at a Chinese Restaurant** Mark Cottrell	**Development of Certification-specific Training for Onsite Professionals** Nancy Deal
2:30 - 3:30 PM	**Exhibition Hall Open with Refreshments Provided (Hall closes at 3:30)**			
3:30 - 4:15 PM	**Aerobic Treatment Unit and Media Filter Overview** Jim Converse	**Onsite Wastewater Systems Management Tools for the New Jersey Pinelands** Bruce Douglas	**"I Didn't Know My Dealer Could Do That!": The Equipment Provider's Role in Quality Control of Decentralized Wastewater Systems** David Cotton	**Subsurface Sewage Treatment Practitioner Experience Program Evaluation** Nick Haig
4:15 - 5:00 PM		**Nitrate Removal Results with Biological Anoxic Filtration** Craig Jowett	**Wastewater Treatment and Reuse at a Commercial Development - Flexibility is Key** Bruce Meyer	**Connecting The Messages - Safe Disposal and Public Education Task Force on PPCPs** Dendra Best
6:30 - 9:30 PM Reception at Milwaukee Public Museum - Entry and Refreshments Provided				

Thursday, April 9 | All sessions at the Hilton Hotel

7:30 - 9:00 AM	Continental Breakfast Available outside of Wright Ballroom				
Breakout Sessions	**XII. NOWRA Decentralized Systems Overview: A to Z — Wright A Ballroom**	**XIII. Regional Code Forum — Wright B Ballroom**	**XIV. System Performance Evaluations & Modeling — Wright C Ballroom**	**XV. System Sustainability & Management — Walker Room**	**XVI. Business — MacArthur Room**
9:00 - 9:45 AM	**Pumps and Controls for Decentralized Systems** John Buchanan	**Midwest Regional Code Forum** **Why must our rules be so different? The pros and cons of regional rules.** Session Moderator: Richard Otis Panel Participants: Doug Bird, Mike Corry, Roman Kaminski, Brian McQuestion, Daniel Olson, Tony Smithson, Mark Wespetal and Andy Winkler	**Public Confidence in Onsite Systems Requires Field Testing and Field Standards for Performance** Nick Nobles	**The True Cost of Sustainable Onsite Treatment Systems** Colin Bishop	**Weathering the Economic Storm: Business Survival** Valerie Nelson and Jerry Stonebridge
9:45 - 10:30 AM			**Long Term Comparative Performance of Two Septic Tank Designs** Craig Jowett	**Effectiveness of Domestic Wastewater Treatment Technologies in the Context of the New Constraints Imposed by Lifestyle Changes in North American Families** Roger Lacasse	
10:30 - 11:00 AM	Break outside of Wright Ballroom				
11:00 AM - 12:00 PM	**Soil Treatment Principals and System Types** Randy Miles	**Topics Include:** **What triggers rule revisions and how is technical input utilized?** **How our rules can impact regulators, manufacturers, suppliers, designers, installers, and owners.**	**A Comparison of Standard Constituents Present in the Waste Stream from Single Residential Sources to Values Reported in the Literature** Mia Tucholke	**Implementing a Performance Based Code** Bruce Lesikar	
12:00 - 1:30 PM	Lunch on your own				
1:30 - 2:15 PM	**Gravity & Pressure Soil Based Distribution Methods** Jim Converse	**What is the status and acceptance of NOWRA's Model Code Framework?** **What is holding our industry back from adopting performance-based rules?** **What are the barriers to collaborating on technical requirements, licensing programs, and product approvals between states and how could these barriers be overcome? Would overcoming them help or hurt?** **What can NOWRA do?**	**Onsite System Longevity: The Maine Study** Chet Rock	**Return Flow to Ground Water from Onsite Wastewater Systems** David McQuillan	
2:15 - 3:00 PM			**Modeling the Fate and Transport of 5 Organic Wastewater Contaminants in Onsite Wastewater System Soil Treatment Units** Sarah Roberts	**Reuse as a Tool in Total Water Management** Robert Rubin	
3:00 - 3:45 PM	**Operations & Maintenance of Decentralized Systems** Bruce Lesikar		**Modeling Soil Treatment Units with HYDRUS-2D, Constructed Wetlands Module (CW2D)** Assaff Wunsch	**New 'How To' Guidance for Successful RMEs** Cynthia Mitchell	
3:45 - 4:30 PM			**A Simple Tool for Predicting Chemical Removal in Soil Treatment Units** Mengistu Geza	**Recent Trends in Decentralized Wastewater Management** Valerie Nelson	

Exposition Hall Schedule/Information

NOWRA's 18th Annual Technical Education Conference & Exposition
Milwaukee Midwest Airlines Center • Milwaukee, WI •April 6-9, 2009

Exposition Schedule – Midwest Airlines Center – Exhibit Hall D		
Booth Set-Up	Monday, April 6, 2009	12:00 – 6:00 PM
Exposition Inspection/Walk-Thru	Tuesday, April 7, 2009	9:00 – 10:30 AM
Exposition Opening & Hours	Tuesday, April 7, 2009	10:30 AM – 6:30 PM
Exposition Reception	Tuesday, April 7, 2009	4:30 – 6:30 PM
Local Professionals Open House	Wednesday, April 8, 2009	9:00 AM – 3:30 PM
Exposition Breakdown	Wednesday, April 8, 2008	4:00 PM

2009 NOWRA BOOTH RATES

Sign up today to get the booth or your choice.

10 x 10 Booth	$1295
Additional 10 x 10 Booth	$1195
Non-Member Booth	$1495
Non-Member Additional Booth	$1395

EACH EXHIBIT BOOTH INCLUDES

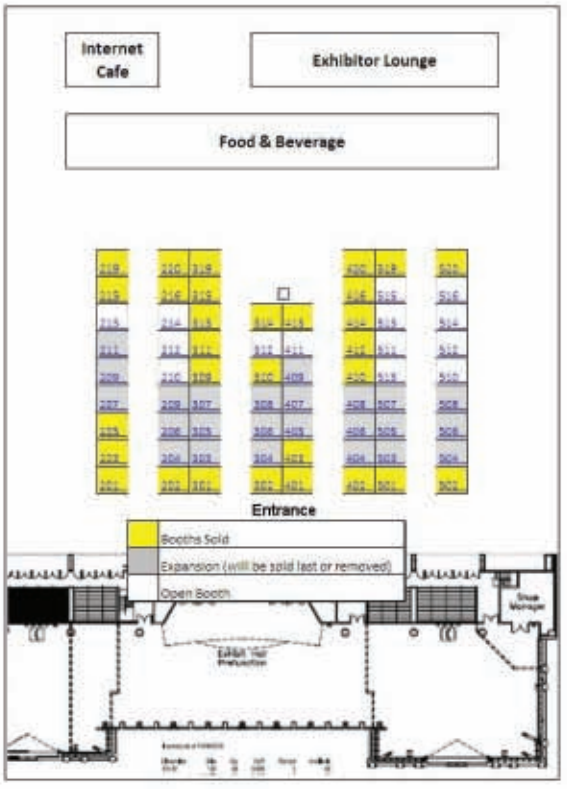
- 2 Full Registrations*
- 1 – 10' x 10' booth
- 1 – 7" x 44" one-line, black & white ID sign
- 1 – 8' x 30" skirted table
- Booth back drapes, 8' high with two 36" high side dividers.
- 2 chairs & wastebasket
- Company name and profile in Exhibitors' listing in the Conference Program.
- Attendee list distributed via email before and after the conference.
- Carpeting is provided throughout the hall.
- Copy of proceedings.

*Full registration includes admittance to all technical sessions, receptions, awards luncheon, breaks, one complementary conference proceedings and conference handouts. Additional booth registrations are $175 per person.

HOTEL RESERVATIONS

All Lodging Reservations for NOWRA's Conference can be made directly with the Hilton Milwaukee City Center.

- Room rate for single/double is $123.
- Cut-off date for room block is March 8, 2009.
- Call 1-800-HILTONS to book your room.



BUSINESS BENEFIT PROGRAM

By joining the BBP Program you can enhance your business marketing efforts while helping support the association's mission:
to advance and grow the onsite and decentralized wastewater industry.

Some of the benefits include:

- Up to $2500 in booth credits.
- Advertisement in the conference program book.
- Discounts on Onsite Journal advertisements. (Distributed to nearly 5000 members)
- Premium listing on our popular Septic Locator
- Several forms of recognition at all conferences and other publications.

For a complete listing of program benefits and more details, please visit www.nowra.org or contact NOWRA Headquarters.

See the back cover of this Onsite Journal for our current listing of 2009 BBP Partners.

SPONSORSHIP & ADVERTISING

Make the most of your conference experience by taking advantage of these valuable sponsorship and advertising opportunities we have. For more details and to see other exciting advertising and sponsorship opportunities please visit the website or call NOWRA Headquarters.

Advertising Rates

Size	B&W	Color
Full Page	$1250	$1750
1/2 Page	$900	$1200
1/4 Page	$500	$750
Business Card	$250	N/A
Inside Front/Back Cover	N/A	$2250
Back Cover	N/A	$2750

Other Great Opportunities

Contact NOWRA or visit our website for more details about these opportunities.

Conference Bags	$1000
Conference Lanyards	$700
Bag Inserts	$500
Plasma TV Ad	$600
Booth Traffic Builder Card	$200

Sponsorship Levels

The Great Lake Level	Includes: booth, advertising, sponsorship of offsite reception, speaking spot in opening session and much more!	$4000
The Lake Level	Includes: booth, advertising, sponsorship of cyber café and much more!	$3000
The Harbor Level	Includes: booth, sponsorship of offsite tour, and many forms of recognition throughout the conference.	$2000

For more information on any of the above information please feel free to contact us at:
NOWRA Headquarters
3540 Soquel Ave., Ste A, Santa Cruz, CA 95062 • 800.966.2942
info@nowra.org • www.nowra.org

2008 Installer Academy in Las Vegas Was a Winner!

We have all heard the phrase that "When the going gets tough, the tough get going." In this case, the economy has provided the first "tough" while the professionals who attended the latest NOWRA Installer Academy have provided the other "tough."

The 4th Installer Academy was held from December 8– 10, 2008, in Las Vegas and was rated as a great success by those who attended. Boasting its largest attendance ever, it reinforced the point that hard hitting information and education is needed more than ever with the economy we face. And NOWRA delivered!

Event Highlights

Today's tough times challenge us to stay abreast of anything that can help in these times and there is no better way to do that than a forum such as the NOWRA Installer Academy. With a broad range of attendees from around the country, from Alaska to Washington D.C., available to network with and learn from, we believe that everyone left with solid ideas on ways to make their business better. The Installer Academy even welcomed guests from China and the World Bank who attended to learn about the latest technology.

The ever-entertaining Tim Frank, Former NOWRA President, current NAWT President and long time owner of Tim Frank Septic Tank Cleaning Company, kicked off the event with keynote address that stressed how the individual installer is the key to ensuring the integrity of the industry. His dynamic presentation emphasized the importance of addressing the complete onsite system cycle, including design, installation, operation and maintenance, and pumping.

This year's curriculum was the broadest ever offered. Several manufacturers and academics spanned a broad range of topics. Among the most highly attend was the Installer Training Program track conducted by the Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT). This was the 3rd of four pilot workshops for the Installer Curriculum, all hosted by NOWRA.

In addition to CIDWT, two other EPA MOU Partners attended the Installer Academy and provided Education—NAWT and NEHA. NAWT held a full day Vacuum truck technician training. NEHA administered their credential exam and presented a overview session about the credential.

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Roe-D-Hoe 2008 Awards: Tom Groves (NOWRA President), Mark Ritter (2nd Place), Andrew Gunia (Champion), Jerry Stonebridge (Past President), Brett Schwarz (3rd Place).

2008 Installer Academy in Las Vegas Was a Winner! *(continued from page 25)*

An opening session panel discussion was hosted on how to help your small company survive in this economy. A southwest states forum was held on the last day that focused on regulatory issues and practitioner training and certification.

Roe-D-Hoe Champion

If it sounds like it was all work and no play, think again! The 2nd Annual Roe-D-Hoe event proved to be great fun and a real test of skills. Attendees from around the country pitted their backhoe skills against each other in a series of tests on equipment to determine once and for all (at least this year) who the best of the best was. First place, and a check for $1,000 went to Andrew Gunia from Washington State. Andrew is the reigning WOSSA state Roe-D-Hoe champion and he was sent to Las Vegas on their behalf to compete. Second-place honors went to Mark Ritter of Minnesota and Brett Schwarz of Washington State placed third. Congratulations to all. You provided a great bit of entertainment for all to watch. Many thanks to the Roe-D-Hoe sponsors—Stonebridge Environmental and Bobcat.

Many Thanks!

This event wouldn't have been possible without the support of a number of volunteers, among them Darryl Cloud, chairman of the Conference Committee and Judith Sims, a member of the Education Committee and Chair of the Installer Academy Education Program.

Much appreciation goes out to our exhibitors who brought their positive energy to the Expo Hall along with information on the latest technology and specific products available to installers.

Looking Toward the Future of the Installer Academy

NOWRA is already looking ahead to future Installer Academy events. While the Installer Academy has always been hosted in Las Vegas, the Conference Committee is considering other options moving forward. We will update everyone as plans develop.

NOWRA is proud of the work it does nationally to support the efforts of affiliate groups as well as providing education and support to those where there is no formal organization. ■

NOWRA IN ACTION

Getting Involved in NOWRA—*What's In It for Me?*

For most of us, membership in NOWRA provides us a periodic newsletter and the opportunity to attend an annual conference for networking, catching up with old friends, and a chance to learn what is new in the industry. But, do you ever wonder "Is this all there is?" If so, maybe it's time for you to join a committee!

The real "work" of any organization is done by its committees. This is certainly true of NOWRA! Many of our members volunteer their time and expertise to work on a broad range of issues that impact our industry, our affiliates, our businesses, our practices, our regulations, and the public we serve. It's rewarding work and offers opportunities to make a difference in our industry.

The committees are also the stepping stones to becoming involved in the governance of NOWRA through the Board of Directors and its officers. Being involved is a way to become an industry leader!

We invite you to consider becoming a member of one or more of our committees and/or task forces. We have 12 committees and 4 task forces. (These are described in the table on the next page.) They have much to do but are challenged to getting it all done. They need your ideas, your expertise, your management skills, your hard work; all those things that you do everyday, which make you successful in what you do! In return, you will have the benefit of working with other dedicated members to advance our industry.

Most committees meet once a month via conference calls that may take 1 to 2 hours each. Committee members are expected to assist in completing tasks associated with projects undertaken by the committee. The total time commitment is variable and can be adjusted to accommodate a member's availability.

Interested? Go to www.nowra.org/committees.html to email a committee or task force chair and ask how you could help.

See list of NOWRA Committees on next page.

— Join a NOWRA committee and make things happen! —

COMMITTEE	CHAIR	ROLE
Marketing and Communications	Mike Stoll (mike_stoll@msn.com)	Develop effective communications and promotional strategies with external partners and other interests that achieves greater public awareness of NOWRA's programs and work on behalf of the onsite industry.
Finance	Greg Graves (ggraves@norweco.com)	Provide effective strategies to obtain funding to maintain and advance NOWRA's programs
Education	Sara Christopherson (heger001@umn.edu)	Advance member education through the NOWRA annual conference, state programs, and other venues or specialty programs. Provide opportunities for essential dialogue on innovative technologies and management through effective forums, and maintain approval of Continuing Education Units (CEU's) for all NOWRA courses.
Conference Committee	Darryl Cloud (darryl_cloud56@msn.com)	Serve as the lead committee for the NOWRA Annual Conference by providing an effective committee structure and knowledge of regional industry issues. Works closely with local organizational support team (if available).
Technical Practices	Allison Blodig (alimarie86@yahoo.com)	Promote sound and appropriate technical practices in the application of onsite wastewater treatment system management.
Governmental Relations	Mark Hooks (Markhooks@embarqmail.com)	Establish and facilitate effective communication and monitoring strategies with local, state legislative and federal regulatory officials.
External Affairs	Mary Clark (clam@premiertech.com)	Establish and facilitate effective communication and build relationships with EPA and various national water resource related organizations (MOU Partners and others).
Model Code Committee	Tony Smithson (asmithson@lakecountyil.gov)	Develop and advance the Model Code Framework and related documents relative to performance standards and operational management of decentralized systems to manage the risk of harm to the human and natural environments.
Member Association Leaders	Hilary Moore (Hilary.Moore@state.de.us)	Serve as communication conduit between the NOWRA leadership and respective local Associations to identify membership needs, and provide essential information developed by NOWRA that contributes to professional effectiveness.
Committee Chairs	Dick Otis (otis.rj@charter.net)	Coordination of all Committees chaired by the Vice-President.
Governance Committee	Al Schnitkey (al.schnitkey@hotmail.com)	Ensure that the Association's governance procedures are current and relevant to its ongoing work
Web & Technology Committee	Ron Suchecki (ron@hootsystems.com)	Review and make recommendations for the improvement of the Association's web site and data management.

TASK FORCE	CHAIR	DURATION	ROLE
Onsite Journal Editorial Board	Headquarters (Jessica@btfenterprises.com)	Ongoing	Guide development of the Onsite Journal.
Resource Library	Judith Sims (jlsims@cc.usu.edu)	12/08–12/09	Research info for the development of a NOWRA online resource library.
Manufacturer/ Membership Prospective DB	Peter Balas	12/08–12/09	Research possibilities of a database to be developed that would assist manufacturers and build membership.
2011 Super Conference	Craig Gilbertson (GilbertsonC@AyresAssociates.com)	12/08–12/09	Coordinate with NEHA, SORA, NOWRA, and others on a super conference for 2011.

NOWRA Committee Reports

CONFERENCE COMMITTEE

Submitted by Daryl Cloud, *Chair*

I am delighted to report that NOWRA's Installer Academy in Las Vegas was a well attended success. We wish to thank Bobcat Company for including the 2nd Annual National Roe-D-Hoe as part of their 50th anniversary celebration. Exhibitors and attendees alike enjoyed a valuable exchange of information in a comfortable and intimate setting with our event partners, the National Association of Wastewater Transporters, Inc. (NAWT) and the Consortium of Institutes for Decentralized Wastewater Treatment (CIDWT). Thank you to all who participated in this successful event.

The Conference Committee is very excited with regards to the planning for NOWRA's 18th Annual Convention in Milwaukee, Wisconsin, April 6–9, 2009. Many hours have been invested by NOWRA's staff, Ann Gryphan and the staff from the Wisconsin Onsite Wastewater Recycling Association (WOWRA), as well as countless volunteers to make the annual conference an informative and memorable event. The theme for the conference is "Onsite: The Sustainable Wastewater Opportunity." and will be located within the Midwest Airlines Center, a robust 21st century convention facility located in the heart of downtown Milwaukee. In addition, the host hotel, Milwaukee Hilton City Center (www.hiltonmilwaukee.com) is conveniently connected to the Midwest Center by an enclosed skywalk. Make your reservations today for this informative and educational conference opportunity at www.nowra.org.

EDUCATION COMMITTEE

Submitted by Sara Heger Christopherson, *Chair*

Judith Sims has taken over a leadership role in the education committee and is chairing the education offering for the Installer Academy.

Recent Activities

1. Coordination of the education program for the 4th Annual Installer Academy held December 8-10, 2008.
2. Coordination of the NOWRA track at the Pumper Show on February 25, 2009.
3. Developed program for Annual conference in Milwaukee including:
   - Preconference on pharmaceuticals and personal care products
   - Keynotes
   - Roundtable discussions
   - A to Z
   - Tours of decentralized systems
   - Variety of educational sessions

Upcoming Activities

The committee will be working hard over the next few weeks to review papers for the program for Milwaukee. Speaker follow-up, proceedings development and logistical issues are also activities that need to be completed before the conference.

The committee has also been working with CIDWT on marketing of the final pilot training of the Installer Training materials in Kansas City March 5–6, 2009. The committee will also be working with the HQ office over the next year to get past and current proceedings available in an online library on NOWRA's website, instead of just on the CD provided to attendees at the conference.

If you are interested in contributing to the committee, contact Sara Heger Christopherson at heger001@umn.edu. The EC has a conference call the third Wednesday of the month at 1:00 EST. Between meetings committee members are expected to contribute to one or multiple programs the education committee is working on. This can range from a few hours per month to as much time as one has to volunteer.

FINANCE COMMITTEE

Submitted by Greg Graves, *Chair*

Given the economic environment that we currently face, appreciation goes out to the Executive Board, BTF Enterprises, the State Affiliate Groups, and all of the members who worked diligently in the past year to preserve revenue sources and decrease expenses. Without the efforts of everyone, 2008 would have been much more difficult for NOWRA. Thank you to all who worked very hard to promote our organization.

The Finance Committee was re-constituted in 2008 with Howard Wingert of Concrete Sealants as Chairman. Howard was instrumental in focusing NOWRA on the pressing financial issues, and working to address them. The Committee was instructed by the Board of Directors and the Executive Committee to help with business and strategic planning, and Howard did so. Because of his effort, NOWRA remained a going concern in 2008 and has improved several accounting areas that have caused confusion in the past. Thank you Howard, and we are all very pleased that you have agreed to remain as a member of the Finance Committee.

As goals for 2009, our committee has listed the following: (1) keep NOWRA financially viable; (2) get the financials to the Board Members sooner to help them stay better informed; (3) help protect and expand the membership base; (4) work toward co-hosting conferences with other groups in our industry; (5) help make the Annual Conference in Milwaukee a financial success; and (6) participate in the upcoming contract discussions/renewal with BTF Enterprises.

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Committee Reports *(continued from page 29)*

During the January conference call, the Board of Directors approved the budget for 2009. This budget projects continued weakness in revenues, to be tempered by considerable cost control measures. The 2009 budget projects a surplus of approximately $30,000 which would put NOWRA back in the position of having a positive Equity Fund balance. Key components of the 2009 budget will be:

1. Continued support from the State Affiliate Groups, for which NOWRA will need to demonstrate its value as a national organization,
2. A good show in Milwaukee, and
3. Corporate support, through the Business Benefit Partners and other programs.

The single largest factor allowing NOWRA to project a surplus for 2009 was the agreement by BTF Enterprises to reduce their management fees by over 20%. This will be accomplished by some reduction in time spent on activities classified as less critical to the organization. We very much appreciate BTF stepping up to the plate and sacrificing along with the rest of us.

The Finance Committee would like to thank Jessica Finney, Stephanie Munoz, and Glenn Zimmerman for all their work and particularly for the success with the most recent Installer Academy. We look forward to working with everyone in 2009.

GOVERNMENT RELATIONS COMMITTEE

Submitted by Mark Hooks, *Chair*

December through early February have been bust times for the committee. We have been actively following the proposed Obama stimulus package with an eye on whether any funding will be available for our industry. The committee drafted a request letter that asks them for a specific appropriation for decentralized technology, as opposed to simply providing funding for sewers. We are seeking between 25 to 30% of the funds to go towards decentralized system options. As of this writing the House of Representatives has passed an appropriation bill that funds water and wastewater infrastructure, but doesn't have a special item specifying the funding of decentralized systems. The current focus is to persuade the Senate to specify funding for decentralized system repairs, maintenance programs and scientific research. If we are successful; a conference committee between the House and the Senate will negotiate the differences and will send a bill to the President for consideration. With any luck we will succeed in securing much needed funding to revitalize our industry. I am also actively recruiting for additional committee members and for a Vice Chair. If you think you'd like to get engaged in the national policy issues, please consider joining us. ■

NOWRA Members Called to Action

Promote National Ground Water Awareness Week

National Ground Water Awareness Week, March 8–14, is a time to recognize the importance of ground water and water well stewardship to our nation's future.

It also is a time for NOWRA members to emphasize the role of proper maintenance of onsite waste water recycling systems to protect ground water quality. This fits well with the National Ground Water Association's (NGWA) four-point stewardship message of:

- Ground water protection
- Proper water well construction
- Regular well maintenance
- Regular water testing and treatment, if necessary.

"Mark these dates on your calendar and consider how to promote ground water stewardship during this week," said NGWA Executive Director Kevin B. McCray, CAE. Organizations can find ideas for promoting ground water awareness by clicking the Awareness Week tab on the NGWA Web site, www.wellowner.org.

Not only do about 12 million households nationwide rely on private wells for their water supply, many community water systems rely on ground water in whole or part to meet water demands, and ground water supplies much of our nation's water for agricultural irrigation. Ground water makes up about 95 percent of all available fresh water.

Everyone can easily become good stewards by protecting ground water through the proper storage, use, and disposal of hazardous household substances such as gasoline and oil, paints and paint thinner, fertilizers, weed killers, pesticides, and cleaning products. Proper disposal includes not pouring them down the drain or flushing them down the toilet. Instead, contact local waste authorities about proper disposal. ■

LOCAL AFFILIATES' UPDATES

Local Affiliate Groups—
The Grassroots Energy of the Onsite Industry

COLORADO PROFESSIONALS IN ONSITE WASTEWATER

Colorado Professionals in Onsite Wastewater (CPOW) just completed another successful Annual Meeting. This year's meeting was held over two days and was the first year that CPOW hosted multiple educational tracks throughout each day. The highlights of the conference included the opening keynote presentation on Micro-dosing and Sand Filters from Dr. George Tchobanoglous, and a soil classification workshop led by Dr. Jim Anderson that had attendees literally getting their hands dirty.

CPOW also held its 1st Annual Roe-D-Hoe, patterned after the NOWRA event. Attendees had a great time showing off their skills and spectators braved to cold to cheer them on. The winner looks forward to competing nationally in 2009.

Many CPOW members saw for the first time a "Well and Onsite Homeowner Awareness" DVD produced by Montana State University and the Colorado State University Extension Service. CPOW has been directly involved in this U.S. EPA funded project designed to help better inform homeowners about the function and considerations of onsite systems; members will be integral to distributing the finished video to Coloradoans in 2009.

CPOW recently incorporated the U.S. EPA Voluntary Management Guidelines into the NOWRA Model Code as the framework for a new risk-based approach to onsite regulation in Colorado. Members will be working with state agencies to advance the code, and are looking forward to another exciting year of legislative activity. For more information on events and news, go to www.cpow.net.

DELAWARE ONSITE WASTEWATER RECYCLING ASSOCIATION

Regulation Amendment Process Underway for the On-Site and Spray Regulations

The Start Action Notice was signed by the Secretary Of Delaware's Department of Natural Resources and Evniromental Control on December 18, 2008 in order to proceed with the of the on-site and spray regulations update. The Ground Water Discharges Section (GWDS) is amending the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems to include expanding the large system requirements to include spray irrigation. This will establish one set of regulations for all of our on-site programs except Underground Injection Control.

In order to help facilitate less meetings and mailings the GWDS has set up a website to follow the changes. These changes will be discussed and shown during the workshops and work groups but it is hoped that we get written feedback throughout the time periods between the meetings and workshops. The entire current regulation is included in what you will see on the website —there have been no deletions or additions in the small system sections but they have been re-arranged to provide a better flow. Here is the link to the amended regulation:
http://www.wr.dnrec.delaware.gov/Information/GWDInfo/Pages/GWDSDesignInstallOperateInfoForProposedWWTreatmentRegs.aspx

A working committee has been formed and we would like representation from all licensee groups but have only a few volunteers so far. The volunteer groups include; soil scientists, designers, spray irrigation designers, system contractors and hydrologists. We still need another Class B designer, waste haulers and system inspectors. We want to keep the committee to around 20 people. All of us in the GWDS look forward to working with you to change the regulations.

IOWA ONSITE WASTE WATER ASSOCIATION

Iowa Onsite Waste Water Association (IOWWA) held its 11th annual conference January 13–14. Each of the previous ten years showed an increase in attendance by members and interest from sponsors and exhibitors. For 2009, the IOWWA Board made a bold move to change the conference site from a local hotel conference center to the Polk County Convention Complex. Doing so enabled them to host 24 breakout sessions plus large equipment dealers, truck dealerships, septic tank manufacturers and others displayed their equipment inside rather than outside in Iowa's frigid temperatures. The move was so successful that the 2010 conference will expand to two levels—one for an exhibit hall and the other for classroom & workshop space. As was said at another Iowa function, "Build it and they will come" —they did!

In conjunction with the conference, IOWWA held a 2-day overview class and testing for NOWRA CIOWTS. This was the second offering of the class and testing in Iowa for a total of over 80 contractors and regulators that have tested at either the Basic or Advanced levels. Several Iowa counties have added certification requirements to their regulations beginning in July 2010. Because of IOWWA's commitment to education and building professionalism in the industry, they have hosted these two sessions, will hold a third in April, and another in the fall.

For more information about certification, the conference, or other IOWWA events, call Alice Vinsand, Executive Director at 515-225-1051.

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MICHIGAN ONSITE WASTEWATER RECYCLING ASSOCIATION

The 58th Michigan Onsite Wastewater Conference was held at the Kellogg Conference Center at Michigan State University the week of January 13, 2009.

This is a joint conference involving the Michigan Onsite Wastewater Recycling Association, Michigan Septic Tank Association, The Michigan Environmental Health Association., Michigan State University, Michigan Department of Environmental Quality and the Michigan Water Environment Association.

The first day is an industry training day which is sponsored by the exhibitors and includes a Septage 101 class, a Soils Texturing Workshop and special topics.

The Septage 101 course was taught by Dr. Mark Gross and Dr. Dave Lindbo. The Special Topics included Plan Review, Use of Tire Chips in Drain Fields, Pressure Distributions Networks and Advances in Decentralized Wastewater Treatment. The Soils Workshop was sponsored by the MDEQ.

Wednesday morning join session started with a keynote address with Dr. Erin Dreelin from MSU speaking on "Microbiological Research Related to Wastewater Dispersal in the Environment." The Wednesday afternoon session and Thursday sessions were run in two separate tracts.

There were over 500 registrants who attended the meeting. Over 40 exhibitors' booths were located in the Big 10 room at the Kellogg Center.

MINNESOTA ONSITE WASTEWATER ASSOCIATION

MOWA 2009 Annual Convention: MOWA's Annual Convention is scheduled for March 2–4 at the Ramada Inn, Mall of America in Bloomington, MN. The program features exhibitors and technical sessions on the following topics:

- O&M for Advanced Treatment Systems presented by manufacturers.
- Update on the MPCA rule changes
- The latest research on System Design/Soils
- Rural Development & Small Communities Programs

Minnesota Pollution Control Agency: MOWA members are actively involved in the design guidance development and product registration process for Subsurface Sewage Treatment Systems (SSTS) and provided input on the rule changes regarding tank fee collection.

Strategic Planning Meeting

The MOWA BOD, association management staff and Committee Chairs participated in a Strategic Planning meeting in January. Our Executive Director, Pat Martyn facilitated the half day meeting. Some of the benefits of a strategic plan are to: develop a shared vision and goals for the organization, clarify expectations of board/staff/members, focus resources, and identify new opportunities/threats.

The session consisted of a brainstorming session on:

1. The organizations mission: The group broadened and simplified the MOWA mission statement: ***"Promoting professionalism in the onsite wastewater industry"***
2. Conducted a SWOT (Strengths, Weaknesses, Opportunities & Threats) analysis.
3. Developed the three major focuses for 2009:
   - Education
   - Volunteer Recruitment & Retention
   - Legislative/Regulatory Relationship

MISSOURI SMALLFLOWS ORGANIZATION

The 13th Annual Missouri Smallflows Organization Conference and Exhibition and Pre-Conference Seminar were held January 19, 20 & 21, 2009, in Columbia, Missouri. The Pre-conference Seminar featured a full day on ATUs including Mechanical Extended Aeration Treatment Systems, Installing and Starting Mechanical Aerobic Treatment Units and Operation and Maintenance of Mechanical Aerobic Treatment Units. The seminar was taught by Bruce J. Lesikar, Ph.D., P.E. Bruce serves as Associate Department Head, Professor, and Extension Program leader in the Biological and Agricultural Engineering Department at Texas AgriLife Extension Service. He has a B.S and M.S. in Agricultural Engineering from Texas A&M University and a Ph.D. in Agricultural Engineering from the University of Illinois.

The Conference and Exhibition drew the largest group of vendors in the 13 year history of MSO Conferences! The unique Holiday Inn Expo center allows vendors to bring concrete and plastic septic tanks, advanced treatment units and other large display items inside on the expo floor and out of the weather. This year, in addition to the normal selection of informative seminars, keynote speakers and breakout sessions, the MSO Board decided to have breakout sessions consisting of manufacturers on ATUs and gravelless drainfield products. Next year we hope to have a session on media filters. Complete information on the conference including vendor list, expo floor plan, and agenda can be found on the MSO web site: www.mosmallflows.org.

A task force was formed to address Volunteer Recruitment & Retention. There are concerns about MOWA volunteers burning-out and the need to recruit and develop new volunteers. Some of the things that are being considered:

1. Where do we find new volunteers? Advertise in the MOWA newsletter, Convention sign up, Email promotion, U of M workshops, referrals from BOD members.
2. Improve development and mentoring of Volunteers: Establish and communicate clear expectations for volunteers, develop manuals, and make efficient use of their time.

3. Better recognition of volunteers: Awards, feature that highlights volunteers in the MOWA newsletter, and name badges and recognition at the convention.

OHIO ONSITE WASTEWATER ASSOCIATION

Bad weather and hazardous driving conditions didn't deter 132 attendees from participating in the OOWA 2009 Annual Conference and Trade Show on January 14 &15 in Columbus. Kudos to our Program Committee for all their hard work in organizing and coordinating this seamless, well-run event. Thanks also to all the speakers for sharing their time and expertise with us and to all the vendors who set up exhibits in the trade show hall.

The Annual Membership Meeting was held on the first morning of the conference allowing OOWA members an opportunity to ask questions and present suggestions regarding the on-going operation and future of the association. All the newly elected Directors were introduced at this time including Jim Charville, Stephen Hamilton, Larry Hanna, George Hess and Mike Morrow. Not much reorganizing took place as all OOWA's officers agreed to serve again in 2009 including President Mike Rowan, Vice-President Nathan McConoughey, Treasurer Kenneth Evans, and Secretary Dusten Gurney.

Proceeds from "Split-the-Pot" Raffle and Silent Auction will go to the OOWA Professional Development and Memorial Grant Fund. Two grants, of up to $500 each, are awarded from this fund annually to two OOWA members to help pay for their onsite educational expenses. Thanks to all who donated items and to all who purchased tickets and participated in the silent auction.

Awards were presented to outgoing OOWA officers and directors and the fifth Distinguished Service Award was presented to Tim Frank for his outstanding service in helping advance the onsite wastewater industry in Ohio. Tim has served as President of NOWRA, the Ohio Waste Haulers Association, and the National Association of Wastewater Transporters and as Vice President of OOWA. Congratulations on a job well done Tim!

And now the work starts for planning next year's conference…

Switching to news about the Ohio legislature, the final session of the Household Sewage and Small Flow On-Site Sewage Treatment System Study Commission met in December. In this session the committee finalized recommendations that will be presented to the Ohio General Assembly regarding reasonable standards for the siting, design, installation, operation, monitoring, maintenance, and abandonment of household sewage treatment systems and small flow on-site sewage treatment systems. Twenty issues were agreed to ranging from definitional changes and soil absorption standards to service contracts and the role of the Technical Advisory Committee. Of much relief to contractors was the recommendation to allow statewide bonding for registration versus purchasing a bond for every county they intend to work in potentially saving them a lot of money.

OOWA supplied input throughout the yearlong legislative process since the statutory changes will directly impact Ohio's sewage treatment system rules. Two OOWA members, Mike Felton and Scott Marut, donated their time to serve on the Sewage Study Commission while other OOWA members including President Mike Rowan attended various meetings. OOWA also submitted recommendations in response to the numerous draft proposals insisting requirements for soil absorption be based on science, the rules reflect statewide minimum standards from which Health Departments can be more stringent but not less, and that the rules allow for statewide testing and bonding of contractors. The complete report of the Study Commission can be viewed at the following address: http://www.odh.ohio.gov/ASSETS/0BE3E96EDAE34872BD930AB4FA4CBD40/upevents.pdf

Once the state law is amended, the Ohio Department of Health will begin the process of writing new rules. OOWA will continue to be involved in this very important process.

ONTARIO ONSITE WASTEWATER ASSOCIATION

The Ontario Onsite Wastewater Association continues to develop its program for its members as well as initiatives with local and provincial government departments.

During 2008 OOWA participated with the Ministry of Municipal Affairs and Housing on two technical advisory committees to evaluate and recommend changes to Ontario's Building Code Pertaining to Area Bed Design as well as the proposed implementation of a province wide Re-Inspection Program for all septic systems. The Re-Inspection program is part of an initiative through both the MMAH and Ministry of Environment to ensure safe and clean water for residents of Ontario.

OOWA is in the process of developing an educational initiative with Ontario Colleges that offer environmental and related Civil Engineering Technology courses to enhance their current curriculum and to be used for upgrading the skills of installers in Ontario.

OOWA is also proposing to develop a provincial registry database system initiative that will provide all government departments as well as local inspectors and installers the exact location of septic systems, the type of system, type of technology installed as well as reference to any wells. The goal of the registry is to educate and inform as well as keeping track of the more than 2 million systems that have been installed over the years.

Finally our 10th Annual Conference is taking place March 1–3 in Richmond Hill, Ontario, with the theme being "Year of the Installer" and we are please to have Trapper Davis, owner and founder of Coastal Plains Environmental Group, as a keynote speaker.

YANKEE ONSITE WASTEWATER ASSOCIATION

The following are some of the major activities YOWA has engaged in since our last report. Our Winter newsletter is being finalized and will be available shortly.

I4A Database – YOWA is presently serving as a test site for online renewals. This allows a current member to renew with credit card without having to print a form and send it to their affiliate organization. Because different types of credit cards have different processing fees the cost for using this service is approximately 3%

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per transaction. NOWRA returns the renewal fee, which is customized for each affiliate, to the affiliate organization less the credit card processing charge. The affiliate is still responsible for their payment to NOWRA for that portion of the dues. So far our experience has been very positive. Several YOWA board members have used the online renewal option with great success.

GSDI – The Granite State Designers and Installers Association (New Hampshire for those of you "from away") is hosting a one day technical conference and exhibition on Monday March 23, 2009. YOWA is proud to sponsor Bill Stuth of Aqua Test, Inc.; Black Diamond, Washington as the featured technical speaker. Bill will be giving two presentations on "Wastewater Strength: Residential vs. Commercial – Why It Matters," and "Sustainable Systems." YOWA and GSDI are exploring a mutually benficial relationship regarding membership in both organizations.

Training – YOWA hosted its second successful training session in the state of Vermont last December. The program was conducted by Peter Fletcher of MA and dealt with the identification and classification of soils for subsurface wastewater disposal. The session provided much needed certification credits for Vermont system designers. YOWA is currently considering several training sessions in Massachusetts, Connecticut, and Vermont. ■

AFFILIATE AND NOWRA | Calendar of Events

MARCH 2009

1–4 **Ontario Onsite Wastewater Association.** 10th Annual Conference and Trade Show, Sheraton Conference Centre, Richmond Hill, Ontario. Contact: (800) 668-0101 or www.oowa.org

2–4 **Minnesota Onsite Wastewater Association.** 2009 Annual Conv., Ramada Inn - Mall of America, Bloomington, MN. Contact: MOWA (888) 810-4178 or www.mowa-mn.com

2–4 **Texas Conference - TOWTRC & TOWA.** 2009 Annual Conference and Trade Show, Waco Convention Center, Waco TX. Contact: (888) 398-7188 or www.txowa.org or register at www.lonestarregistration.com

5–6 **CIDWT & Missouri Small Flows.** National Installer Curriculum 4th Pilot Training Event, Clay County Health Department, Liberty MO. Contact:(417) 739-4100 or www.mosmallflows.org

8–10 **Pennsylvania Association of Sewage Enforcement Officers.** Annual Conference. and Trade Show, Grantville, PA. Contact: (717) 761-8648 or www.pa-seo.org

16–19 **California Onsite Wastewater Association.** Western Exhibition & Technical Conference, Hilton Arden West Hotel, Sacramento, CA. Contact: (916) 727-COWA (2692) or www.cowa.org

23–24 **Tennessee Onsite Wastewater Association.** 13th Annual Education Workshop, Embassy Suites & Conf. Center Murfreesboro, TN. Contact: Theo Terry or www.onsite.tennessee.edu/TOWA.htm

APRIL 2009

6–9 **National Onsite Wastewater Recycling Association.** 18th Annual Technical Conference and Exposition, Midwest Center in Milwaukee, WI. Contact: (800) 966-2942 or www.nowra.org

JUNE 2009

17–19 **Arizona Onsite Wastewater Recycling Association.** 2009 Onsite Wastewater Educational Conf., Radisson Woodlands Hotel, Flagstaff, AZ. Contact: (928) 443-0333 or www.azonsite.org

ONSITE INDUSTRY NEWS

Volume Measurement and In-Situ Testing of Decentralized Wastewater Products Are Steps to Ensure Proper System Performance

Clemson Study concludes chambers provide twice the storage capacity as comparable stone trench.

By Dennis F. Hallahan, P.E.

Introduction

The decentralized wastewater industry and scientists are exploring innovative decentralized wastewater treatment design and better methods of testing new approaches. This includes advanced treatment and disposal technology and decentralized treatment management strategies. Each year, onsite residential septic systems replenish the aquifer with billions of gallons of treated wastewater. Homeowners, regulators, and communities depend on these underground systems to do one specific thing for them—work. They also expect the systems to perform for periods of 30 or more years with routine maintenance and inspection, and preferably, no expensive repairs or replacement.

The explanations of "working well and must perform" do not stop with simply discharging wastewater to the soil for treatment for all those years. These septic systems must maintain their structural integrity and storage capacity in order to "work" for the long term. Companies that manufacture integral components for these systems (tanks, distribution boxes, leachfield chambers, piping) design and engineer each component to last numerous years under various conditions with the goal of ensuring the best performance and structural integrity possible beginning with the installation and placement of the system itself. Manufacturers also specify how a system should be cared for and properly maintained by qualified contractors. Once wastewater is treated in a decentralized treatment system, it must be released to the environment. Although water reuse is gaining in popularity, distribution of treated wastewater to the subsurface is a common practice. As surface water discharge becomes more difficult and costly, subsurface discharge methods and designs will be increasingly scrutinized for environmental safety.

Although the recent decrease in housing starts in the United States may have tempered the growth of the decentralized market for the short term, the predicted increase in U.S. population from the present 303 million to 419 million persons in 2050 bodes well for the long term prognosis of the decentralized wastewater treatment industry.

The views expressed in this article are those of the author and do not necessarily reflect an official policy or position of NOWRA.

About the Author: Dennis F. Hallahan, P.E., is Technical Director at Infiltrator Systems, where he is responsible for government relations and technology transfer between Infiltrator Systems and the regulatory and design communities. Dennis can be reached at 800-221-4436 or dhallahan@infiltratorsystems.net.

The Ongoing Debate: Sewered versus Unsewered

With the high cost of sewers and lack of availability of quality land nationwide, developers and builders are being forced to consider sites with difficult soils and tough terrain where new onsite wastewater strategies and alternative methods of treatment may the only solution to get a code compliant system. The need to satisfy ever-stricter environmental regulations is a major factor in the popularity of alternative treatment with local health officials. This also applies to large recreational and commercial developments in environmentally sensitive areas where a combination of technologies must also be considered.

The traditional centralized approach to water use and wastewater treatment involves extracting water, treating it, and sending it out through a distribution system to homes and businesses. Then the water is used and delivered back through a collection system to a treatment plant before the treated water and any associated pollutants are discharged into a river where it is carried downstream. Using a decentralized approach we can extract groundwater, consume it, treat the wastewater onsite and return it close to its point of origin in order to recharge the aquifer.

Not only is wastewater management an issue in rapidly growing areas, the need for developers to be able to stay competitive and the desirability for communities to have interactive areas and open space is an issue in more rural areas as well. Decentralized wastewater treatment can be a viable option that allows for this type of development.

Natural Systems Continue to Gain Ground

The introduction of chamber technology over thirty years ago was a revolutionary step in increasing the effectiveness and acceptance of standard and advanced onsite systems. Commercial and community systems have benefited with the increased storage capacity to meet peak flows, sand filter performance has been improved by better distribution coverage, and wetland treatment systems reliability has been enhanced. These systems also help to create communities that have a nucleus of space and life in close proximity to clustered commercial services; a more cost effective, psychologically appealing, and eco-friendly approach.

Engineered wetlands are another natural treatment option that has gained ground as an effective approach for communities. What makes wetlands unique from other treatment processes is that they employ vegetation as part of the treatment process, and they require very little energy input.

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Volume Measurement and In-Situ Testing *(continued)*

Wetlands cannot be used everywhere, however on sites with adequate space, the benefits of wetlands can create substantial cost savings, especially for systems that have to operate over long periods of time. Wetland systems, through their complex assemblages of plants and bacteria, can provide a stabilized treatment platform for domestic wastewater and recalcitrant, difficult-to-degrade industrial compounds.

Often, these two effective treatment approaches are used together in residential community system applications and other decentralized treatment designs including large systems for commercial and industrial wastewater treatment.

Ensuring Performance

With the options available and the complexity of the applications, it is critical to determine that the technology and products employed will meet specified levels of treatment. In situ testing is one way that this can and is being done.

Performance Testing and Predictive Tools Increase in Importance—Real World Testing: Clemson University In-Situ Volume Measurement Study

In situ testing is integral to obtaining true, accurate results. Testing in the lab also has merit but stringent quality controls must be in place. The in-situ testing allows real world conditions to be replicated as the weight of the soil can deform products at varying degrees. This is critical as determining product volume from mathematical equations, drawings, or assumed porosities has been demonstrated to be flawed. Using in situ testing, the simplistic method of installing unaltered products in a typical construction, whereby none of the products were cut or manipulated, yields accurate results.

A 2004 field study by the Clemson University Department of Entomology, Soils, and Plant Sciences measured the in-situ liquid storage capacities of chambers, multi-pipe systems, and synthetic aggregate bundles, as compared to a conventional, 36-inch-wide, 14-inch-high stone trench. The study showed substantial differences in storage capacity between manufactured drainfield products and the stone trench.

Included in the study were Infiltrator® Standard, Quick4® Standard, Equalizer® 36, and Equalizer 24 plastic leaching chambers widely used in the US and Canada; generic stone and pipe trench, the traditional onsite solutions; PTI MPS-9 and 10, multi-pipe systems; and EZ flow 1402HP, 1203H, 1401, and 1201, synthetic aggregate bundles. Figure 1 shows storage capacities for the products tested.

In the study, the Infiltrator chamber products tested provide a storage capacity that exceeds the storage capacity of a comparable width stone trench. ISI's Standard chamber models, designed for installation in a 36-inch-wide trench, provided more than two times the storage of a 36-inch-wide stone trench at the inlet pipe invert height. ISI's Equalizer® 36 chamber model, designed for installation in a 24-inch-wide trench, provided a total storage capacity equal to a 36-inch-wide stone trench at the inlet pipe invert height. The Equalizer 24 chamber is intended to be compared to a 2-foot wide stone trench so it is not an "apples-to-apples" comparison to include it with the 3-foot wide trench products.

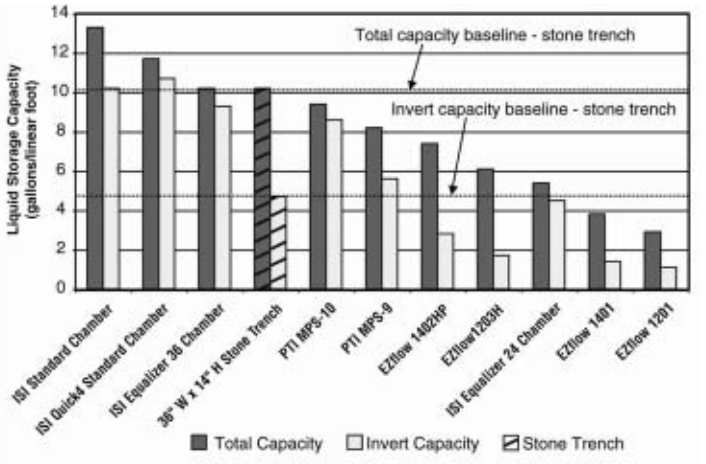

Figure 1: *Total and inlet pipe invert storage capacity.*

The study results provide a practical tool for the designer to select a product that can address storage capacity. This provides a larger factor of safety during peak flow events to the homeowner (or commercial facility) when chambers are employed for the design. It also can serve as a basis for regulators to determine minimum storage requirements and compliance.

State and EPA Sponsored Test Centers Also Provide Product Testing

Test centers such as the Massachusetts Alternative Septic System Test Center also specifically test new technologies and products for effective treatment. In addition, demonstration projects nationwide provide real world performance data that can be used by regulators and manufacturers.

Conclusion

As the acceptance and necessity of using decentralized treatment continues to grow in the market and the technology of onsite systems advances, it will be critical for those involved in the process of using these valuable systems to become better educated on performance during product development and prior to installation. There must be a solid understanding of long term performance and the structural capacities to design systems accordingly. Engineers, contractors, regulators and homeowners all share the same goal—they want these systems to perform well and perform well for year to come. ■

EBJ Honors Outstanding Environmental Firms with 2008 Business Achievement Awards

Environmental Business Journal (EBJ), the leading business newsletter for the environmental industry, has announced the winners of the 2008 EBJ Business Achievement Awards. Recognizing outstanding firms in the environmental industry, this annual award program acknowledges firms for their strong financial performance and growth as well as for specific projects, which are significant in the advancement of the environmental industry.

Bio-Microbics has been awarded the Technology Merit Award in the Water/Wastewater category for the BioBarrier Membrane BioReactor (MBR) technology specifically designed for the residential and small commercial industries. Ideally suited for the unique needs of the decentralized wastewater market, the BioBarrier's design facilitates the discharge of high-quality effluent into environmentally sensitive areas, including surface irrigation and other re-use methods. The BioBarrier system incorporates a robust biological process in a small footprint to help meet the increasingly stringent needs of these specialized applications. The membranes and processes used in this advanced system act as an impenetrable physical barrier for nearly all common pollutants found in wastewater.

"We are pleased to receive the Technology Merit Award," said Bob Rebori, president of Bio-Microbics, Inc. "The simple, modular design of our BioBarrier system delivers consistent high performance and is an important part of a sustainable future for better water."

"Newer and smaller firms were also recognized for their ability to thrive in a tough economic climate," says EBJ Editor-in-Chief Grant Ferrier. "We particularly like to see the amount of small companies that continue to emerge in new and existing niches. While the old guard of the environmental industry continues to be the firms founded in the late 1970s and 1980s, new generations of companies have emerged since and new niches have evolved around sustainability, climate change, and other areas that is creating growth for the future."

The full list of award recipients can be found online at www.environmentalbusinessjournal.com. Winners were recognized at the 2009 Environmental Industry Summit held February 18–20, 2009, in Coronado, California.

Bio-Microbics manufactures proven, economical and ecological wastewater and stormwater treatment systems for decentralized homes, commercial properties and communities located around the globe. ■

Bio-Microbics, Inc., is a Gold Member of NOWRA's Business Benefit Program (BBP). For more information about the BBP, contact NOWRA at 800-966-2942 or visit www.nowra.org/bbp.html

Aquaworx™ Remediator™ Rejuvenates Failing Septic Systems

Failing wastewater drainfields are rejuvenated in as little as two weeks with the Aquaworx Remediator. Installed with minimal landscape disruption, this simple, unique solution is inserted into the existing septic tank and reverses the biological clogging process causing the failure. The Aquaworx Remediator is inexpensive to install, operate and maintain.

The Aquaworx Remediator system enhances the natural treatment process in which oxygen and bacteria work together to maintain a clog-free septic system. Under normal operation, a septic system builds up a biological layer (biomat) that restricts the soil's ability to absorb water. Over time, the biomat may become overly restrictive ultimately causing a system malfunction. Once installed in the septic tank, the Aquaworx Remediator uses a Fine Bubble Air Diffuser to introduce oxygen into the Bacterial Growth Media column so the bacteria can begin to thrive and consume organic matter. The aerobic bacteria combine with the oxygen rich effluent in the tank and then move to the drainfield to reduce the clogging layer and restore infiltration into the soil. The end result is predictable, reliable drainfield remediation.

More than 4,000 failing septic systems have been restored to normal operation with this proven bioremediation technology. The Aquaworx Remediator is a Pirana approved technology that is accepted or approved for septic system repair by numerous regulatory agencies.

Aquaworx offers advanced solutions for the onsite wastewater treatment industry and is a division of Infiltrator® Systems, Inc., a leader in the onsite wastewater industry. Since its inception in 1987, Infiltrator has introduced innovative products that meet increasingly stringent environmental and regulatory onsite wastewater treatment requirements. Through their understanding of the marketplace and the integration of engineering and manufacturing expertise, science, and technology, Infiltrator continues to drive the onsite wastewater market. ■

Aquaworx™ is a division of Infiltrator® Systems, Inc, which is a Gold Member of NOWRA's Business Benefit Program (BBP). For more information about the BBP, contact NOWRA at 800-966-2942 or visit www.nowra.org/bbp.html

NOWRA
National Onsite Wastewater Recycling Association

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2009 Business Benefit Program Members

Gold

- Bio-Microbics, Inc.
- Infiltrator Systems, Inc.
- Premier Tech Environment
- Ring Industrial Group, LP
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- Delta Environmental Products
- Salcor, Inc.
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- Xerxes Corporation

Bronze

- Adenus Technologies, LLC
- Front Range Precast Concrete, Inc.
- Netafim USA
- NORWECO, Inc.
- Waterloo Biofilters Systems, Inc.

Loyal

- Arcan Enterprises
- SJE-Rhombus Controls