President’s Pen

Lots can be accomplished in a very short time, as evidenced by TOWA’s many achievements over the past six months. We’ve hosted a state-wide TOWA conference, watched construction begin on the Center for Decentralized Wastewater Management (CDWM), planned for a national NOWRA conference and held TOWA officer elections, to name a few. All this activity proves that if you work with energetic people who share the same goals, there’s no hurdle that can’t be jumped. This is an exciting time to be associated with TOWA and all of the projects underway.

In conjunction with officer elections, John Gibi officially passed the “President’s Pen” to me, and I hope to continue in his footsteps. Even if he is just an “ole dirt dauber,” John did an excellent job as President over the last year and I applaud him for his many contributions to the organization. In addition to a new President, TOWA has four other new board members: Louan Tillman, ADS, Inc. — President-Elect; Gregg Clingerman, Alley & Associates, Inc. — Director Representing Engineers; Tim Burden, B&B Concrete Products, Inc. — At-Large Director, Middle; and Roger Seay, R&S Construction — At-Large Director, East. Additionally, Dr. Steve Monteith, Monteith Soil Services, was re-elected as the Director Representing Soil Scientists and Mike Hines, Southeast Environmental Engineers, was chosen as one of the TOWA representatives for the CDWM advisory board.

We started 2003 on a high note with the 6th Annual TOWA Conference & Exhibit in Spring Hill, Tennessee in February. Held at the UAW Union Hall, the conference was a great success in many ways, not the least of which was the $5000 profit TOWA netted. Attendees were treated to a full day of technical presentations covering a diverse range of topics. Additionally, the group took a field trip to the site of the new Tennessee CDWM training facility at the University of Tennessee’s Agricultural Experiment Station. As shown in the photos inside this issue, many folks braved the frigid weather for the very first official program at the training center.

Since that first “official” program, the CDWM has been very busy this spring. The Center’s advisory board met twice and began laying the groundwork for a successful facility. The Center also co-sponsored a couple of drip irrigation design training courses across the state. But the most exciting news to report is that construction at the site has begun! Dr. John Buchanan and his staff built the access bridge across the creek and backhoes are busy “slinging dirt.” Excavation is
complete on the two full-scale conventional system disposal field trenches and three of the permanent tanks are installed.

kind services. This can be in the form of donated equipment, supplies, time and services. I encourage you and/or your company to become involved in this project. For more detailed information, see Dr. Buchanan’s open letter on page 8.

On the national front, Tennessee was chosen as the host of the National Onsite Wastewater Recycling Association’s (NOWRA) annual conference this year. The event is scheduled to be held in Franklin, Tennessee, in early November. One of our own board members, Leanne Whitehead (TOWA Secretary), is co-chair for the conference. We are very excited to be the host state and host organization for this big event. This is an excellent opportunity for TOWA and the state to showcase the many things we do. I encourage you to take advantage of this opportunity to attend this national event while its in our own backyard. As you can see, this is an exciting time in the onsite industry in Tennessee. Don’t miss out — I invite you to become a part of this excitement. If you are a past member of TOWA, I encourage you to renew your membership. If you are not a member, I encourage you to get involved and be a part of this dynamic organization. You’ll find detailed membership information on page 3 of this issue. If you have any questions or comments, please feel free to give me a call or send me an e-mail. I can be reached at: (615)790-5751 or at brianc@williamson-tn.org. 

**Brian K. Corwin**  
**TOWA President**

### 2003 TOWA Board of Directors

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<tr>
<th>Name</th>
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<th>Organization</th>
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<tr>
<td>Brian Corwin</td>
<td>President</td>
<td>Williamson Co. Dept. of Sewage Disposal Management</td>
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<tr>
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<td>President-Elect</td>
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<td>John Gibi</td>
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<td>Leanne Whitehead</td>
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<td>Jim McClain</td>
<td>Treasurer</td>
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<td>Bill Pickney</td>
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<td>Gary Ferguson</td>
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<td>Gregg Clingerman</td>
<td>Director Representing Engineers</td>
<td>Alley &amp; Associates, Inc.</td>
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<td>Roger Seay</td>
<td>At-Large Director, East</td>
<td>R&amp;S Construction</td>
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<td>Tim Burden</td>
<td>At-Large Director, Middle</td>
<td>B&amp;B Concrete Products, Inc.</td>
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<td>Earle Beaty</td>
<td>At-Large Director, West</td>
<td>B&amp;D Gravel Co.</td>
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Dr. Roland Mote  
Director Representing Academia  
University of Tennessee-Knoxville

The ONSITE ADVOCATE is published semi-annually by the Tennessee Association of Utility Districts. For more information, please call (615) 896-9022.
Formed in 1997, The Tennessee Onsite Wastewater Association (TOWA) is a professional organization open to those working to advance and promote the onsite wastewater industry in Tennessee.

TOWA serves all members of the industry, including installers, manufacturers, field practitioners, suppliers, engineers, soil scientists, distributors, research professionals, educators, consultants and governmental regulatory personnel. We want you to be part of this Association!

Each year, TOWA sponsors an Annual Conference to bring onsite professionals in Tennessee together to discuss issues relevant to the onsite industry in our state. Combining classroom presentations with an Exhibit Hall gives onsite professionals a chance to see and hear about the latest in onsite technologies and products.

**What We Do…**
- Establish uniform performance standards for design, installation, & servicing of onsite systems;
- Promote the need for regular service & maintenance of onsite systems;
- Communicate information among members as well as to other organizations, agencies & individuals concerned with onsite sewage disposal;
- Collect & disseminate statistics, studies & other facts affecting the onsite industry;
- Educate the general public concerning the value of recycling wastewater, & the need for properly maintained onsite sewage disposal systems;
- Assist in the development of sound ecological practices; and
- Expand the public’s awareness of the important economic contributions of onsite systems in Tennessee.

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**How Can You Join TOWA?**

**Membership Fees:**

- Certified Installers, Licensed Septic Tank Pumpers, Engineers, Soil Scientists, & Consultants: $50
- Academicians, Regulators, & Research Professionals: $35
- Associate & Non-voting Members: $35

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Please make checks payable to:
TOWA
P.O. Box 292983
Nashville, TN  37229-2983
The contracts have been signed and the personnel have been hired - now it is time to build a training center. Located on The University of Tennessee’s Middle Tennessee Experiment Station (near Spring Hill), the Tennessee Onsite Wastewater Training Center is now under construction. With a little cooperation from the weather, the first phase of this facility should be complete by the middle of July.

Many people have worked together to make this facility a reality. Finding the funds is always a difficult task. The Tennessee Onsite Wastewater Association, the Tennessee Valley Authority, and the Tennessee Department of Environment and Conservation came together to provide the matching funds that are required in order to receive a U. S. EPA 319 grant. These organizations and The University of Tennessee Institute of Agriculture are partners in the building of the training center.

Centrally located within the State, this facility will serve as the flagship for a statewide training program. The Middle Tennessee Experiment Station has a comfortable and spacious conference building that can be reserved for classroom-style seminars. Educational sessions will be developed to address the needs of designers and installers of onsite wastewater management systems. Additionally, courses will be developed to advance the knowledge of engineers, soil scientists, land developers, policy makers, and homeowners about importance of onsite systems in the protection of our natural resources.

Adjacent to the conference building is an outdoor training laboratory that will house a series of aboveground displays of onsite technologies. These displays will be divided into two groups: pretreatment and final treatment. Pretreatment includes septic tanks and advanced treatment systems. Several tank styles and tank materials will be on display. Various watertight risers will be mounted on these tanks so that visitors can learn how they are installed. These pretreatment systems will provide the opportunity for the instructors to discuss the advantages and disadvantages of various anaerobic and aerobic treatment processes.

For the majority of onsite systems, the soil provides the final treatment of wastewater. Two full-scale conventional gravel-filled systems will be on display – one that demonstrates a parallel configuration (with a distribution box) and one that demonstrates a serial configuration. These two systems will be based on a three-bedroom house.

Many onsite systems depend on pumps to move wastewater to the soil dispersal system and therefore, several pump control systems will be on display. Pumps can be used to pressurize soil dispersal systems or to move wastewater into gravity dispersal systems. Controllers that are based on float switches (demand based) and that are based on timers (time-based) will be on display.

Pressurized dispersal systems will be displayed. A low-pressure pipe system and a drip irrigation system will be built aboveground. Clean water will be applied to these dispersal technologies to demonstrate to visitors the uniform application of wastewater across the absorption field.

All of the onsite technologies mentioned require good design, proper installation and periodic maintenance. Having these systems on display will allow the training center instructors to provide education about the details of scientific-based design, proper installation and effective maintenance. The goal of onsite waste-
Tennessee Onsite Wastewater Association

Mark Your Calendars for the 12th Annual NOWRA Conference!!!

The 12th Annual NOWRA conference will be held at the Franklin Marriott Hotel and Cool Springs Conference Center on November 3-6, 2003. The theme of this year’s conference is "Decentralized Systems: The Changing World of Wastewater Treatment". This will be a wonderful opportunity to learn about the latest technologies, management guidance topics and regulations needed to enhance and build your professional skills.

A special pre-conference workshop for Installers and Contractors will be offered this year titled "CPR for Onsite Treatment Systems". This comprehensive one day workshop focuses on preventing failure and renovating failing onsite systems. A special fee of $75 allows for attendance of the pre-conference workshop, as well as the evening reception and access to the exhibit hall.

For more details go to the NOWRA.org web site or contact Leanne Whitehead at 931-619-0014.

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Distributor Inquiries Welcome!
SEPTIC TANK ADDITIVES

With over 1200 products currently on the market, many homeowners, designers, installers, and maintenance people have concerns and questions regarding septic tank additives. The following is the On-Site Wastewater Center’s position concerning such products.

As stated in the Rhode Island ISDS regulations under SD 2.12, “The use of acid and organic chemical solvents in any individual sewage disposal system is hereby prohibited.” Acids and other chemicals such as methylene chloride and trichloroethane essentially destroy the biological function of the septic tank, resuspend solids causing drainfield clogging, damage soil structure and eventually get into and contaminate groundwater. They are prohibited for good reason. Acids and base materials corrode concrete tanks and distribution boxes, causing them to leak and fall apart. The reasons for not using these products are numerous and obvious.

More problematic are the biological additives advertised and sold to enhance and enliven the existing biological treatment, to reduce or eliminate pumping by liquefying solids and grease, and to start up regimen of bacteria or enzymes for use when the system is stressed, new, or recently pumped. Some manufacturers claim that everyday use of detergents and cleaning agents stress the function of the septic tank that their product is necessary just to keep the tank functioning under normal use. This of course requires the homeowner to add the additive on a frequent and permanent basis.

The purpose of the septic tank is to keep solids, fats and grease from entering the drainfield. The tank provides, utilizing the extending residence time of the effluent in the tank provided by the tank’s size, an environment for anaerobic bacteria to breakdown organic solids to liquid and gas, leaving only those solids which won’t breakdown to settle out as sludge or rise to the surface as scum. Between these two solid layers is a relatively clear zone. Effluent from this clear zone is drawn to the drainfield by way of the outlet tee. Realizing that there will always be solids that are not broken down, every functioning septic tank will have to be pumped eventually. To say otherwise is not true. The rate of pumping is determined by individual use. We recommend each system be inspected to determine the need for pumping.

Some enzymes and other additives can act as flocculents that resuspend solids that have settled, causing those solids to be carried over into the drainfield. This of course moves the problem from the septic tank to the drainfield where it is much more costly to remedy.

A recent study done at West Virginia University showed a small benefit provided by bacterial additives when the system is under high stress. Septic tanks were dosed with high levels of bleach, etc. and those tanks with additives performed slightly better than those without. The tanks were stressed way beyond what would occur in a normal household.

Another study, at the University of Arkansas, was done to document at what levels of household cleaners a 1000-gallon septic tank could function. Based on this study, the recommended maximum dose for each of the following was established: 1.3 gallons of bleach, 2.5 gallons of Lysol and 0.65 ounces of Draino. These amounts of the individual cleaners were introduced as one slug or large dose. Draino was added in the solid, concentrated form. These recommended maximum doses, based on this study, are conservative; the actual doses that killed the tanks were twice as high. These doses are obviously higher than any normal use would require. Doses of cleaning products should be limited to what the manufacturer recommends.

The study also documents the resiliency of the septic tanks. After the higher (killing) doses were introduced, it took 30 hours for the tank dosed with bleach, 60 hours for the tank dosed with Lysol and 48 hours for the tank dosed with Draino to fully recover; that is, the bacteria levels were naturally restored to the septic tank and performance was back to normal. Essentially these high killing doses could be done once a week and the tank would still recover. None of these tanks had any type of additive enhancement done to them.

Recent research at North Carolina State University revealed no difference in sludge or scum depth between tanks treated with biological additives and those that were not, indicating little treatment effect by the additives.

The amount of bacteria or enzyme in each dose of additive is small compared to the bacteria already in the tank or introduced with the first flush of human waste (in the case of a new system). Thus its effectiveness is slight or not discernable. The State of Washington will allow the use of additives that can satisfactorily prove they have a positive benefit to the operation of the septic system. The law was designed not only to prevent harm to the septic system and the environment, but also to protect consumers from manufacturers making false claims.

Most states allow the use of biological additives, realizing they are, for the most part, not harmful to the system, but also realizing that there is little evidence showing them to be beneficial. Instead of spending money on additives, it should be saved and spent on an inspection or pump out if needed.

Education plays a major role in how well a septic system is used and
maintained. With knowledge the consumer can make educated decisions concerning purchasing additives. Homeowners using an additive may develop a false sense of security, assuming they are solving or preventing problems by using additives. Using additives can create a cavalier and/or a complacent approach when it comes to the dos and don’ts of septic system use. Experience has shown active inspection and maintenance (along with properly designed and installed systems) are the real solutions to extending system life, and anything that diminishes that approach by the homeowner or community is detrimental to the long term function of the system.

David Dow, Program Manager, (401) 874-5950, dbdow@uri.edu
George Loomis, Program Director, (401) 874-4558, gloomis@uri.edu

If there are any questions regarding the use of additives please call the Training Program at (410) 874-5950.

By David Dow & George Loomis
University of Rhode Island
Cooperative Extension
On-Site Wastewater Training Center

For more information, please go to the University of Rhode Island web site at: http://www.uri.edu/ce/wq/owtc/html/owtc_sepadd.html.

You are invited to participate in the Onsite Wastewater Design Workshop for Subsurface Drip Disposal Systems on August 19-21 in the Knoxville area. The workshop will be hosted by the Center for Decentralized Wastewater Management and the Tennessee Valley Authority. This class has been designed primarily for engineers and environmental health professionals. Tom Sinclair and Brian Britain, both of Waste Water Systems, Inc., Ellijay, Georgia, are experts in the field of drip disposal systems. They will be presenting information about the technology, its applications, advantages, and, more specifically, how drip disposal systems are designed from start to finish.

This three day workshop will include two days of classroom instruction and a field trip on one day to view drip systems. The location for this workshop is still being worked out, but it will be held in the Knoxville or Sevier County area.

Cost for the workshop, if received by August 8 is $350. After August 8, registration fee will be $400. If you would like to go ahead and register for the workshop or you need more information, please contact:

Dr. John Buchanan
UT Center for Decentralized Wastewater Management
2506 E.J. Chapman Drive
Knoxville, TN 37996-4531
Phone: 865-974-7266
Email: jbuchan7@utk.edu
Dear Friends of the Tennessee Onsite Wastewater Training Center:

The University of Tennessee Institute of Agriculture is building an onsite wastewater training facility at the Middle Tennessee Experiment Station near Spring Hill, Tennessee. This facility will have operational displays of equipment and components used in the onsite renovation of domestic wastewater. These displays will be used to educate designers, installers, and consumers of onsite technologies.

The Tennessee Department of Agriculture in cooperation with the U. S. Environmental Protection Agency (EPA) has awarded The University of Tennessee a significant grant to develop this training facility. Forty percent of this grant depends on non-Federal matches of donations (money, services and/or equipment). The retail value of donated equipment and services will be credited toward the fulfillment of this grant. Members of the Tennessee Onsite Wastewater Association are actively seeking equipment donations from within their membership and from local vendors. All donors will be recognized on a display board that will be visible to all attendees at the training center.

The training center will display conventional gravity systems, pressurized distribution systems, alternatives to conventional in-trench aggregates, aerobic treatment (ATUs and media filters), and other treatment technologies. Additionally, the training center will demonstrate various risers, control systems, effluent filters, and other components that help to insure the successful renovation of wastewater. Further, many of these components will be used in a classroom setting to provide education on proper installation and maintenance.

If you have any questions about potential equipment or service donations to the training center, please do not hesitate to contact me. My address and phone is printed on the upper right of this page and my email address is given below. Thanks in advance for your assistance with this important project. Our goal is to minimize the negative effect that sewage can have both on the environment and on human health. With education, we can ensure that onsite treatment systems are designed and installed to provide the maximum benefit to both man and nature.

Sincerely:

Dr. John R. Buchanan, P. E.
Assistant Professor and Center Director
Jbuchan7@utk.edu

Shipping Address:
Middle Tennessee Experiment Station
Attention: John Buchanan
Highway 31-N
Spring Hill, TN 37174
The Center for Decentralized Wastewater Management (CDWM) will host a kick-off event on Thursday, July 24, 2003 for its new Training Center. The program will begin with a series of speakers, followed by a tour of the demonstration sites. Dr. John Buchanan will start the program by discussing the goals and mission of the training center. Buchanan is an Assistant Professor at the University of Tennessee and is serving as the director of the CDWM.

The CDWM is funded by an EPA 319 grant through the Clean Water Act, received through a cooperative agreement with the Tennessee Department of Agriculture. Cost share is provided by the Tennessee Onsite Wastewater Association (TOWA), the Tennessee Valley Authority (TVA), and the Tennessee Department of Environment and Conservation (TDEC). Representatives from each of these organizations will offer their thoughts as supporters of the CDWM.

After the program, attendees will have an opportunity to tour the demonstration area. A guided tour of the demonstration systems will be conducted. Much progress has been made in the installation of the displays at the demonstration area and this will be an ideal opportunity to see a ‘sneak preview’ of the CDWM’s training center.

The Center for Decentralized Wastewater Management is being constructed with the mission of providing people with the chance to learn about the fundamentals of design, installation and maintenance of onsite wastewater systems. Consisting of two components, the training center and a research program, the CDWM will be based at the University of Tennessee’s Middle Tennessee Agricultural Experiment Station in Spring Hill, Tennessee. Please join us on July 24 to welcome this great asset to the area and state!

The kick-off agenda is as follows:

- 1:30 pm – CDWM Training Center Classroom
- 1:30–2:15 pm – Series of Speakers
  - Dr. John Buchanan, Director of the CDWM
  - TOWA Representative
  - TVA Representative
  - TDEC Representative
  - EPA Representative
  - TN Dept. of Agriculture Representative
- 2:15-2:40 pm – Refreshment Break – Meet at Refreshment Tent behind classroom.
- 2:40-3:10 pm – Guided Tour of Demonstration Area

By Jennifer Brogdon
Tennessee Valley Authority
Challenges & Changes in the Underground Injection Control Program

“Injection well? I don’t have a well. All I want to do is put in a septic system.” The Environmental Protection Agency (EPA) has put in effect new rules in the Class V Underground Injection Control (UIC) Program that will directly affect the installers and operators of “Large Capacity” (the capacity to serve more than twenty (20) people a day) septic systems. These Class V systems are found in almost every commercial, industrial, multi-family residential development that are not hooked to a municipal sewage treatment plant.

Liquid waste has been for centuries disposed of by means of some type of subsurface emplacement. The prevailing attitude has been that “out of sight is out of mind.” This idea was for the most part unchallenged until recently when it became apparent that subsurface waste disposal could contaminate ground water. This realization prompted the development of an Underground Injection Control (UIC) Program as part of the Safe Drinking Water Act (SDWA) of 1974. This program was designed to prevent contamination of Underground Sources of Drinking Water (USDW) by injection wells. Injection wells come in all shapes and sizes with varying degrees of complexity. An Injection well” according to the June 2002 regulation modifications means a structure or device which is used for the emplacement of fluids into a subsurface stratum including, but not limited to:

(a) a well used for the emplacement of fluids;
(b) a subsurface fluid dis-

tribution system;
(c) an improved sinkhole; or
(d) infiltration cell and any other structures or devices designed, constructed or used to emplace fluids into the subsurface, except as provided in rule 1200-4-6-.03(3).

Injection is defined as the subsurface emplacement of fluids in a well where a fluid is any material that flows or moves whether it is semi-solid, liquid, sludge or gas. No injection is authorized without approval from the appropriate regulatory agency.

A large number of Class V wells (that is any devise or structure that places a fluid into or above a USDW) pose a significant threat to ground water supplies. Almost, half of the U.S. population receives their drinking water from underground sources. Therefore, it is imperative that these supplies be adequately protected. Class V wells range from improved sinkholes (modified karst features) to large capacity septic systems (systems that have the capacity to serve more than twenty (20) people a day).

At this time, Tennessee is currently revising the final draft in the primacy package from EPA for Underground Injection Control. EPA’s new focus for UIC is on shallow injection wells known as Class V wells that may affect drinking water aquifers.

By Scotty Sorrells
Assistant Manager
Ground Water Management Section

TN Division of Water Supply
6th Floor, L & C Tower
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Nashville, TN 37243-1549
(615) 532-9224
E-mail: scotty.sorrells@state.tn.us
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