Minnesota, Maryland programs educate homeowners about septic systems

by P.J. Cameron
NETCSC Contributing Writer

Editor’s Note: In recent years, the importance of educating homeowners about the impact of their actions on their local environment has been gaining more attention. Today, the concept of personal environmental stewardship is gathering momentum as environmental training professionals target their educational efforts toward individuals. This article profiles two successful state programs that educate the public about the importance of maintaining onsite septic systems. The National Environmental Training Center for Small Communities (NETCSC) is collecting information about other successful homeowner education efforts (See box on page 14); and more programs will be featured in future issues of E-train.

It is Ken Olson’s job to educate Minnesota homeowners so they know just what to do when a problem occurs with their septic system and how to prevent problems from occurring in the first place. Olson is an educator with the University of Minnesota’s Extension Service.

In Maryland, Thomas Miller applies the knowledge he has gained working with farmers to educate rural and suburban homeowners about drinking water and wastewater issues. Miller is a regional Extension Service specialist with the Western Maryland Research and Education Center, which is part of the University of Maryland’s Extension Service.

The activities in Minnesota and Maryland provide two good examples of the types of homeowner education efforts going on around the country.

Rural migration spurs training need

Olson’s involvement in homeowner education started early in the 1990s. At the time, he was helping to prepare a water plan for Sherburne County in a region of Minnesota that was experiencing rapid population growth.

“Much of the new population consisted of people accustomed to city sewers,” Olson explained. “These people were moving into rural areas served largely by onsite septic systems.” The large increase in onsite systems, in turn, sparked plenty of interest in groundwater quality issues.

Miller, meanwhile, had been working with Maryland farmers to implement best management practices (BMPs) to protect water quality. He then began to focus attention on the growing numbers of rural and suburban homeowners.

“Over the years, I realized homeowners were—on a smaller scale—using the same chemicals and practices as area farmers, but with little understanding or care,” he said, adding that it was easy to apply similar BMP concepts in dealing with homeowners’ drinking water and wastewater issues.

Homeowners drive interest

Miller explained that interest in his training sessions is more often driven by general continued on page 8
NETCSC plans courses for fall, January 2000

The National Environmental Training Center for Small Communities (NETCSC) has several training activities scheduled for fall and January 2000.

First, NETCSC will be teaming up with the University of Minnesota Extension Service to cosponsor the live satellite teleconference, “The Next Generation of Sewage Treatment: Flushing in the New Millennium,” which is scheduled for Thursday, October 28, from 7 to 9 p.m. CDT. NETCSC is serving as a downlink site for this teleconference that will explore alternative onsite treatment technology to solve wastewater treatment problems for individual homes and small groups of homes. (See article on page 9 for further information about the teleconference.)

An alternate rate-setting training course will be held in Morgantown, West Virginia, on November 30; Morgantown, West Virginia, on December 1; and Wheeling, West Virginia, on December 2. These workshops will cover water rate-setting and forecasting for small water systems. The workshop will use a rate design software program, RateMod Pro, to help participants understand important rate-setting questions to consider in designing rates to recover the full costs of operating a system. Participants will learn financially responsible rate structuring methods and develop a rate structure for their own systems. The University of Maryland’s Environmental Finance Center, the West Virginia Municipal League, and the West Virginia Rural Water Association will cosponsor this event.


Designed for officials who manage small water and wastewater systems, this course will cover determining community needs, basic water and wastewater treatment options, system management and operation, and environmental training assistance available through NETCSC. (See article on page 3 for more information about the NSF International Symposium.)

NETCSC currently is planning a four-day Environmental Training Institute for environmental trainers, assistance providers, and local officials that will be held this summer in Morgantown, West Virginia. The institute will offer training courses in wastewater, drinking water, and solid waste management delivered by top trainers in the country; the opportunity for small community leaders, environmental trainers, and assistance providers to meet and exchange ideas and to collect resources to address wastewater, drinking water, and solid waste issues; panel and roundtable discussions about key issues in the environmental training field; and environmental training-related exhibits and presentations.

For the most up-to-date information about NETCSC course offerings, visit NETCSC’s Web site at www.netc.wvu.edu. For more information about any of these courses, write to Sandy Miller, NETCSC, West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064; call (800) 624-8301 or (304) 293-4191, extension 5536, or e-mail smiller2@wvu.edu. ♦

NETCSC on the road again

Staff members from the National Environmental Training Center for Small Communities (NETCSC) will be on the road again this fall attending national conferences to gather information and promote NETCSC services.

Look for NETCSC staff at these events:
- National Onsite Wastewater Recycling Association’s annual conference in Jekyll Island, Georgia, November 3 to 6;
- International Conference on Solid Waste Technology and Management in Philadelphia, Pennsylvania, December 12 to 15; and
NOWRA to hold annual conference and exhibit

The National Onsite Wastewater Recycling Association (NOWRA) will host its Eighth Annual Conference and Exhibit at Jekyll Island, Georgia, November 3 to 6. NOWRA is a not-for-profit professional association serving the onsite wastewater treatment industry.

The conference provides a forum for the exchange of ideas and educational advancement to a broad range of onsite wastewater treatment professionals. Programs are divided into multiple tracks that primarily relate to the private sector or the regulatory or academic communities. This year, the conference will feature 40 seminars, panels, and presentations, as well as more than 60 exhibitors showing the latest in onsite wastewater treatment technology. A proceedings book will be available at the conference.

For more information about the conference, write to NOWRA, P.O. Box 647, Northbrook, IL 60065-0647; call (800) 966-2942; fax (847) 559-9235; e-mail 103061.1063@compuserve.com; or visit NOWRA’s Web site at www.nowra.org.

Groundwater Foundation plans annual conference

The Groundwater Foundation’s 15th Annual Fall Symposium, “The Road Less Traveled: Understanding and Addressing Groundwater Risks,” will be held November 15 to 17 in Atlanta, Georgia.

The program will include keynote speakers, concurrent sessions, poster presentations, and several pre-conference workshops. The 1999 Groundwater Guardian communities, affiliates, and national partners will be designated during the conference. Groundwater Guardian is an international program that supports, recognizes, and connects communities taking voluntary steps toward groundwater protection.

For more information or to register, write to The Groundwater Foundation, P.O. Box 22558, Lincoln, NE 68521-2558; call (402) 434-2740; fax (402) 434-2742; or e-mail info@groundwater.org.

International solid waste conference scheduled

The 15th International Conference on Solid Waste Technology and Management is set for December 12 to 15 in Philadelphia, Pennsylvania.

Sponsored by The Journal of Solid Waste Technology and Management, Widener University, and the University of Pennsylvania, the conference is billed as one of the world’s most important solid waste events. It will feature more than 130 speakers from 30 countries, 40 working sessions, and a post-conference field trip.

For more information or to register, write to the Department of Civil Engineering, Widener University, 1 University Place, Chester, PA 19013-5792; call (610) 499-4042; fax (610) 499-4059; or visit www.widener.edu/solid.waste on the Web.

Small systems technology symposium set for January

“Small Drinking Water and Wastewater Systems: Technology for the 21st Century,” a technology expo and international symposium, will be held January 12 to 15 in Phoenix, Arizona.

Sponsored by NSF International and the Rural Water Research and Education Foundation (RWREF), the symposium will present the latest practical technological, operational, and management solutions and regulatory issues tailored specifically to small systems.

The National Environmental Training Center for Small Communities (NETCSC) also will offer the one-day course, “Water and Wastewater Management for Small Systems,” in conjunction with the symposium. (See article on page 2 for more information about this course.)

The symposium is the second in a series on small systems developed by NSF International in collaboration with the World Health Organization, the Pan American Health Organization, the National Drinking Water Clearinghouse, NETCSC, and other organizations to explore solutions to the challenges small systems face. The first international symposium, held in Washington, D.C., in 1998, gathered more than 400 experts to discuss the provision of safe drinking water in small systems.

Those interested in exhibiting or attending are invited to contact NSF International or RWREF for further information regarding the program. Contact Joseph Cotruvo at NSF International at (202) 289-2140 or cotruvo@nsf.org, or Diane Snyder at RWREF at (505) 843-9119 or rwref@nm.net.
The National Environmental Training Center for Small Communities (NETCSC) is pleased to announce that the popular training program, “Basics of Environmental Systems Management” (BESM) is now available on CD-ROM.

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“The BESM CD-ROM has the potential to make environmental training hi-tech,” said Lynda Kersey, NETCSC training specialist. “It can be used to complement a trainer’s guided instruction, as a self-study tool for those who are unable to attend traditional classroom training, or as a reference source.”

Developed originally in 1994 by NETCSC and Tennessee Technological University, the BESM program provides a basis for understanding the fundamentals of drinking water treatment, wastewater treatment, solid waste management, and decision making.

According to Kersey, the CD-ROM version of the program is very user-friendly. It includes Adobe Acrobat Reader 3.01 for Macintosh and Windows computers, as well as simple, straightforward instructions for installing it. After installing Acrobat Reader, the program can be launched by clicking on the “Begin” file.

From the table of contents, users may select topic areas of interest. Each topic area has chapters that introduce basic concepts, discussion questions to promote further thought, review questions to test knowledge, and resources for finding additional information. Users can easily move back and forth between chapters, questions, definitions, and topic areas.

The BESM CD-ROM was prepared by the Center for the Management, Utilization, and Protection of Water Resources at Tennessee Technological University. Funding for the production of the CD-ROM was provided by U.S. Environmental Protection Agency Region 4 under a cooperative agreement with Tennessee Technological University.

The CD-ROM (Item #TRSWCD36) costs $2.50, plus shipping and handling charges. To order, call NETCSC at (800) 624-8301 or (304) 293-4191, fax (304) 293-3161, or e-mail netc_orders@mail.estd.wvu.edu.

NDWC catalog, resource guide available

Two new information resources are now available from the National Drinking Water Clearinghouse (NDWC).

The Drinking Water Products Catalog lists more than 240 educational products to assist small communities with their drinking water system needs. It includes resources covering financial topics, management issues, regulations, research, technologies, and other subjects.

The 1999 Outreach Resource Guide lists information about nearly 90 federal, national, professional, and trade organizations that have drinking water-related interests. It includes each organization’s mission, water-related activities, publications, address, Web site, and phone and fax numbers.

For free copies of these publications, call the NDWC at (800) 624-8301 or (304) 293-4191 and request the Drinking Water Products Catalog (Item #DWBLPR01) or the 1999 Outreach Resource Guide (Item #DWBKGN36). Orders also may be e-mailed to ndwc_orders@mail.estd.wvu.edu.

NETCSC publishes updated training resources catalog

More than 100 helpful training resources are detailed in the new Environmental Training Resources Catalog for Small Communities now available from the National Environmental Training Center for Small Communities (NETCSC).

This new 24-page catalog provides detailed descriptions of the current training packages, training aids, and training-related information available from NETCSC. Topic areas include training packages, NETCSC database searches, environmental management, drinking water, wastewater, solid waste, training, and adult education.

Information also is provided on the organization that developed the resource, year of publication, number of pages, type of product, item number, and price for each resource.

To request a free copy of the Environmental Training Resources Catalog for Small Communities, call NETCSC at (800) 624-8301 or (304) 293-4191.

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Delaware provides free training to all operators, achieves major compliance milestone

by Jill A. Ross
Acting E-train Editor

On August 1, 1999, Delaware began providing free training to all municipal, county, and state drinking water and wastewater treatment plant operators thanks to recent funding by the Delaware state legislature.

According to Jerry Williams, program manager of the Environmental Training Institute at Delaware Technical and Community College in Georgetown, Delaware, this funding received in July allows all operators to attend certification and recertification training courses at the Environmental Training Institute at no charge.

Delaware may be the only state in the country now providing free training for its water and wastewater facility operators, said Williams. Already the training institute has seen a dramatic increase in enrollment. “Our course load has nearly doubled,” said Williams. “Because it is free, operators are taking more than the minimum number of courses.”

After the funding was secured, Williams sent letters advertising the free training to all of the state’s operators through compliance officers. The operators were quick to sign up for training. Williams is excited about this new initiative and the operators’ response to it. “Our level of funding could increase as needed,” he said.

Training pays off

Delaware’s proactive approach to training its environmental professionals is paying off, said Joe Mulrooney, program manager for compliance in the surface water discharge section of the Delaware Department of Natural Resources and Environmental Control (DNREC).

“Delaware has just completed eight straight quarters of no significant, chronic noncompliance in its reporting to the EPA,” said Mulrooney. “This has never been accomplished before in Region 3 that I know of, and I suspect it has not happened nationally.”

Mulrooney admits that Delaware is a small state, but feels that the state’s training program and how the regulators deal with the facilities has allowed the state to achieve this compliance milestone.

He gives credit to the state’s operator outreach program that offers any noncompliant facility amnesty from enforcement while it is being helped as long as the facility accepts the recommendations made by the outreach personnel. According to Mulrooney, in the past the state had two or three facilities that were routinely out of compliance.

“With facilities taking advantage of the operator outreach assistance and the DNREC offering amnesty, we have created a win-win situation for everyone,” said Mulrooney.

Delaware’s Rural Water Association (DRWA) also has played a significant role in helping keep the state’s wastewater facilities in compliance, according to Rick Duncan, DRWA’s chief staff officer. “We provide training and technical assistance to community water and wastewater facilities in Delaware whether they’re small, large, public, or private.” he said. “We have staff in the field every day working with operators, local officials, and engineers.”

Rose Cline is DRWA’s circuit rider who assists wastewater facilities with compliance issues. She provides technical assistance, schedules training, and works in the lab, said Duncan.

“All our people take real pride in what they do—making sure everyone has safe, clean drinking water,” said Duncan.

Town’s efforts recognized

As an example of the progress made in bringing facilities into compliance, Mulrooney points to the town of Millsboro. Just three years ago, the town’s plant, which treats 570,000 gallons of wastewater per day, had been in chronic noncompliance with Nocardia bacteria problems.

“The plant came into the operator outreach program and got turned around,” said Mulrooney. “And now it is being awarded the EPA Region 3 Operation and Maintenance Award for Most Improved Plant. Millsboro has even applied for additional help to perform an energy audit to take the plant’s performance to the next level.”

When asked what reward or recognition the state receives for its record of compliance, Mulrooney joked. “We get to keep our jobs and go to work tomorrow.” Then he added, “This really is a major accomplishment. The towns are tickled to death.”

For more information about Delaware’s training programs, contact Williams at (302) 855-5900, Mulrooney at (302) 739-5731, or Duncan at (302) 398-9633.
Mike Coley (center), an environmental engineer and trainer with the New York State Department of Environmental Conservation demonstrates a laboratory kit test for two Wastewater Plant Inspectors and Wastewater Plant Operators published in January 1999.

The New York State Department of Environmental Conservation (NYSDEC) has developed a New Comprehensive Five Year Training Plan for Wastewater Plant Inspectors and Wastewater Plant Operators. This plan was developed from a 1998 survey of 5,000 operators and inspectors. The responses from the surveys were used to prioritize training needs and develop the plan.

NYSDEC had implemented a training plan, ending in 1997, which resulted in the delivery of more than 100 training programs to more than 4,565 wastewater professionals. Completion of that training plan brought the need to resurvey wastewater treatment plant operators and inspectors to develop a new and refocused five-year comprehensive training plan. The training plan team’s mission was to “Survey the regulated community and regulatory staff involved with the generation, treatment, or disposal of wastewater and develop a training plan.”

The 1998 Training Needs Survey focused on wastewater treatment plant inspectors and operators. Three surveys were developed to address the specific and individual needs of each target group. The first survey was developed for NYSDEC inspectors and it used the internal e-mail system to send the survey and receive the survey responses. The second survey was developed for local health department and New York City Department of Environmental Protection inspectors. The third survey was developed for municipal and industrial treatment plant operators. The operator survey was designed to use a scanner to read and store the responses directly into a database.

The surveys contained more than 200 training topics. The topics were grouped into general subject categories, with the respondents selecting a maximum number of training topics in each category.

The inspector survey categories were inspection training, regulatory training, sampling testing and analysis, safety and health, operations training, sludge thickening, sludge dewatering, sludge stabilization, small systems (less than 30,000 gallons per day), industrial wastes treatment, EPA categorical, other major industries, and general training.

The operator survey categories were regulations and state pollutant discharge elimination system (SPDES) requirements; multi-media environmental responsibilities; general training; sampling, testing, and analysis; safety and health; operations training; industrial waste treatment methods; maintenance; sludge handling and disposal; EPA point source categories; industrial classifications; municipal process training; and industrial pretreatment.

The respondents also provided additional information regarding their location, experience, drainage basin, and facility discharge information. This information was helpful to analyze the results by various perspectives (e.g., geographic priorities).

Survey responses were divided into three major groups: inspectors, operators, and New York City watershed. Responses within each group were then ranked by frequency of selection.

The inspectors identified the following top 10 training needs:

1. inspection of nonpoint sources
2. septic tank/sand filter systems
3. SPDES permit drafting strategy
4. overview of water laws and regulations
5. stormwater regulations
6. data analysis techniques for compliance evaluation
7. overview of SPDES regulations
8...., continued on next page
NYSDEC is pioneer in assessment, training

by Jill A. Ross
Acting E-train Editor

When it comes to training its wastewater treatment professionals, New York State’s Department of Environmental Conservation (NYSDEC) is on the ball. Not only has the NYSDEC developed a state-of-the-art survey format for needs assessment, published an extensive training plan for the next five years, and secured full funding to cover its ambitious plan, this is the second time they’ve done it.

“In 1989 we did our original comprehensive training needs assessment for wastewater treatment plant operators and inspectors,” says Phillip T. Smith, P.E., chief of the Division of Water’s Facility Operations Assistance Section. “When that five-year plan was completed, we had offered more than 100 workshops, seminars, and presentations to more than 4,500 wastewater professionals in the regulated community.”

According to Smith, at the time of NYSDEC’s first needs assessment it was the only state in the country taking such a comprehensive look at training for wastewater treatment professionals. “It was our goal to develop a model that would pinpoint the training needs and then lay out a comprehensive road map to address these needs,” says Smith. “We’ve found that the model works. We do our homework, and it’s easy after that.”

So when the state’s first comprehensive training plan was completed in 1997, Smith decided it was time to do it again. This time, Smith’s team of six professional engineers, certified operators, and support staff formatted the survey so it could be read electronically. They also set up a database that could be used to sort and rank the results of a 1998 survey of 5,000 operators and inspectors.

Published in January 1999, the New Comprehensive Five Year Training Plan for Wastewater Plant Inspectors and Wastewater Plant Operators, outlines 118 training programs that will be delivered between April 1, 1999, and March 31, 2004, with a total budget of more than $200,000. (See article on page 6.)

“The new plan and the money for it was formally endorsed by the NYSDEC. The department is committed financially to making it happen,” says Smith. “For the first training plan, funding was secured year by year, but we were still able to deliver 90 percent of the training that we set out to do.”

Smith found that the training needs have changed since the first survey. “The technology is changing, the regulations are changing, so the needs have changed,” says Smith. “We’ve added 30 to 40 new programs to our new plan.”

According to Smith, most of the training programs are designed and delivered by his team members. “However, our training needs are so extensive we look to others for help,” he says. Preliminary discussions are underway for the National Environmental Training Center for Small Communities to co-sponsor some training deliveries in 2000. Other professional organizations, training centers, and colleges assist with the training, says Smith.

According to Smith, the NYSDEC may still be the only state taking such a comprehensive view of training. “This is a good model. It has worked well for us.”

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8. development and application of water quality standards
9. evaluation of permittee’s sampling program
10. small package biological systems

The operators identified the following top 10 training needs:
1. legal responsibilities/reporting requirements
2. troubleshooting operations and maintenance problems
3. preventative maintenance management systems
4. life stations
5. potential hazards at regulated sites
6. advanced troubleshooting operations and maintenance problems
7. hazardous waste: multi-media
8. overview of water laws and regulations
9. solid waste
10. confined space entry procedures

The survey responses showed a strong need for training programs on both regulations and wastewater treatment plant operations and maintenance. These responses also helped show the effectiveness of the previous training plan. Many of the topics that were delivered in the first plan were not a high priority for the 1998 survey respondents.

continued on page 14
Minnesota, Maryland programs educate homeowners about septic systems

continued from page 1

concerns about environmental matters than it is by triggering events such as septic system failures.

One specific environmental concern among Maryland residents is the health of the Chesapeake Bay. Miller conducts sessions for a state group concerned about the impact that septic system use and other activities have on the bay’s health. His frequent work with Realtor groups suggests that potential homebuyers are paying more attention to drinking water access and wastewater treatment requirements.

Similarly, Olson said there occasionally are septic system failure events and cases of well contamination that lead Minnesota homeowners to his program, but general environmental concerns are more often the reason for interest. For example, there is a lot of public concern over lake water quality, he said, recalling the state’s nickname: “Land of 10,000 Lakes.”

He ran through a list of additional reasons state residents are concerned about groundwater and drinking water quality. These include protecting fisheries as well as property values, containing urban sprawl and land use matters in general, and reaction to state legislative initiatives.

“The Minnesota legislature and several agencies have been proactive on wastewater treatment and groundwater protection issues,” Olson said. “For example, the state Department of Health is involved in wellhead [or source water] protection planning, and each Minnesota county has its own water plan.”

New statewide licensing regulations for septic system designers, installers, inspectors, and pumpers, along with mandatory septic system disclosure forms for real estate transactions, have pushed interest in Minnesota.

Two parts to the equation

Olson mentioned the “two very important parts” to the onsite sewage treatment equation—the design and installation part and the operation and maintenance (O&M) part. The two components, he stressed, are equally important and necessary to accomplish proper sewage treatment.

“My observation from working in this field for the past eight or nine years is that a lot of attention is paid to design and installation, but too little attention is paid to operation and maintenance,” Olson said. Homeowners, he added, may employ well-suited technologies to address their specific wastewater treatment need, but the systems are likely to fail if the homeowners do not maintain them properly.

“The solution is to educate the homeowner,” Olson said. “Proper system design and installation alone does not guarantee proper treatment.”

This is important for traditional systems and even more critical to the success of alternative systems. The big challenge in making alternative treatment technology work is helping homeowners understand “where they fit in the treatment equation to get the job done,” Olson said.

Many people think that onsite systems are temporary fixes until municipal sewers are extended to their houses, according to Olson. “They don’t realize that these systems—when properly designed, installed, operated, and maintained—treat sewage as well as or better than municipal systems,” he said. “They are as permanent a solution as any municipal treatment facility.”

Olson said he also has observed that there is tremendous variation around the country as to whether septic systems are “disposing” of or “treating” sewage. Minnesota officials stress the treatment aspect, he said, and that fits well into the “recycling water” theme he frequently uses for training sessions.

Olson explained that drinking water wells are generally used with onsite systems, using the groundwater and then returning it to the ground. He said this is superior to the practice of many municipalities in his state that draw groundwater from wells for drinking and dispose of sewage as surface water. “That can affect groundwater tables and supplies. It also degrades the surface waters it is discharged into,” he added.

The Minnesota course

The typical homeowner education course offered by the Minnesota Extension Service has four goals:

- to help homeowners understand the purpose of septic systems (protect human health and protect the environment),

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- to discuss steps homeowners should take to maintain their systems properly.
- to explain how proper operation and maintenance will reduce or eliminate the septic system’s impact on surface and groundwater resources, and
- to explain how proper operation and maintenance will save homeowners money.

“I’m in the business of teaching people to safely recycle water [and nutrients] while protecting human health and the environment,” Olson explained. “That includes the operation and maintenance aspects as well as helping people understand the application of new treatment technologies to do this.”

Olson also said that he simply enjoys helping people who are eager to understand issues associated with environmental stewardship.

“It’s amazing to me that 18 percent of the homeowners installed new low-flow toilets after attending our classes,” Olson said. “It’s one thing to change the detergent you’re using, but it’s quite another thing to invest in and do the work of changing toilets!”

Fighting myths, misinformation

Miller sees the need to go beyond educating homeowners during his training sessions. He said he also must dispel myths and misinformation they have heard about groundwater and wastewater treatment.

“Ignorance of septic systems is a concern. Many people are unaware that their septic tanks need routine pumping and maintenance.” Miller said. “Also, there is so much misinformation out there—much of it deliberate misinformation.”

As an example, Miller referred to businesses that sell treatment products that provide no real benefit or that suggest that using certain products can replace the need for system pumping.

Miller said he tells homeowners to avoid adding “starter enzymes” or yeast to their systems, explaining that additives do not improve system performance. “There are always plenty of natural bacteria available to do the job. In fact, additives can damage the system by breaking up the sludge and scum layers. This can cause solids to flush out of the tank and clog the infiltration bed.”

The Maryland course

Miller’s workshops are generally two hours long, followed by lots of time afterward spent answering participants’ questions about specific concerns or problems. The topics are usually the same:

- introduction to groundwater/surface water hydrology using a groundwater model (See photograph on page 1.),
- how we affect water quality,
- private well maintenance and management,
- water testing and treatment, and
- management of private septic systems.

“With hydrology, we show homeowners that using pesticides and fertilizers on their yards without reading the label or using proper calibration affect their drinking water and aquifers,” Miller explained. “We also talk about the potential impact of not maintaining their septic systems properly.”

On the subject of private wells, Miller drives home the point that the homeowners are responsible for ensuring that the water is fit to drink. “I also emphasize the importance of them being educated consumers so that water treatment device companies don’t swindle them,” he said.

“With septic systems, I stress the importance and necessity of pumping, and the unnecessary addition of chemicals and bogus additives. I also stress the importance of maintenance as it relates to what you flush, how much water you use, and how you treat the area around your drainfield. I assure them that regular pumping and good management beats the price and aggravation of having a system replaced due to failure,” Miller said.

Depending on the program being held, there might be a series of additional workshops on subjects relating to water quality protection in our homes and yards—subjects such as hazardous household products, landscaping and lawn care for water quality protection, composting, stormwater management, alternative cleaners, recycling, and water conservation.

continued on page 14
by P.J. Cameon  
NETCSC Contributing Writer  

Just over a year ago, Curt Baranowski took over as project officer for a U.S. Environmental Protection Agency (EPA) program that provides onsite assistance to operators of small wastewater treatment plants. While the program receives relatively little funding, Baranowski feels it is making a positive impact on the nation’s water quality.

Officially named the Wastewater Treatment Operator Training Program, the program is commonly referred to as the 104(g) program after the section of the Clean Water Act that authorized its existence.

“The 104(g) program was started to help municipally owned wastewater treatment plants in small communities maintain or achieve compliance,” Baranowski explained. “Specifically, the program is available to systems that discharge fewer than five million gallons of effluent a day. Many systems that get assistance discharge fewer than one million gallons per day.”

The program disperses its Congressional allocation in the form of EPA grants to state training centers, environmental agencies, and nonprofit groups that provide assistance onsite at wastewater treatment plants. These groups help system personnel solve compliance issues and provide direct onsite assistance and other operation and maintenance, technical, or financial guidance necessary for the systems to operate at optimum performance.

During their onsite visits, trainers might discuss treatment plant capacity, preventive maintenance, administrative management, or laboratory operations. If there is a need for new or expanded facilities, the trainers might guide town officials on ways to finance the project, how to select consultants, and how to conduct a design review.

“There is absolutely no cost to the systems that get assistance from the program. We provide all the assistance and specific recommendations for free,” Baranowski said, adding that the only requirement is the community’s willingness to work cooperatively with a trainer to correct any problems.

Program’s benefits hard to calculate

The 104(g) program assisted 999 systems during fiscal year 1998. “We were able to help 890 of those systems get back into compliance, maintain compliance, or, at a minimum, improve their performance,” said Baranowski.

He estimated that a similar number of systems were assisted during fiscal year 1999, based on data collected at mid-year. Some of those systems are carryovers from the previous year, he explained, because of their continuing need for assistance.

The true benefit of the program, according to Baranowski, is the improvement in surface water quality as well as the number of enforcement actions that were not taken due to the efforts of the 104(g) program.

“It’s really hard for us to pull together actual numbers of what enforcement costs would have been without the assistance provided under the 104(g) program and its partners,” he said. “There’s no way for us to estimate what the actual penalties would have been if these systems had fallen out of compliance.”

When discussing the 104(g) program’s impact, Baranowski does like to mention one statistic: during fiscal year 1998, federal and state environmental agencies took some form of enforcement actions against 1,000 to 1,500 small systems with discharges of fewer than five million gallons per day.

“There’s no accurate information on the amount of fines levied against those facilities,” Baranowski stressed. “But what I found interesting is that there was almost an even number of facilities that we were assisting and keeping in compliance—therefore enforcement actions are not being taken—as there were facilities against which enforcement actions were taken.”

It could be suggested that the efforts taken under the 104(g) program have helped cut enforcement action against smaller wastewater treatment facilities significantly. “That’s really excellent,” Baranowski said.

The Maryland Center for Environmental Training recently conducted a survey of 45 training centers across the country. A report based on the survey results should help both quantify and qualify the 104(g) program’s effectiveness with a combination of statistics and case studies. The report is expected to be released by the end of 1999.

Evolving role of regulators

Historically, regulatory agency employees have been funded to conduct enforcement

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Tribal presence, distance training are priorities
As 104(g) coordinator, Baranowski has plenty of short-term and long-term goals. He said his top priority is to remain focused on quality training and maybe even increase the number of systems served. “Time and time again, I see training centers and trainers being very creative with what they can do with the level of funding we provide them.”

Baranowski is also eager to see a Tribal training center emerge, modeled on the 104(g) program, to provide the same sort of assistance to Tribal communities. He said officials in other EPA programs also are interested.

“We’ll be trying to establish a center at a Tribal college or organization that will be located in a concentrated area of Tribal communities,” he said. “We’ve sent requests for proposals to about 30 organizations. It’s very much in the development stage, but I think it’s going to be a real positive program, which will supplement the existing one, once we get it up and running.”

Baranowski also sees the 104(g) program partnering with various organizations to provide “distance” training where the trainer and trainee need not be in the same place at the same time. “Certainly there are a lot of operators out there who just cannot reach a training center. If they could take a training course via the Internet or television, that would be fantastic.”

Using the Internet
Baranowski also has a lot of ideas for using the Internet to help get the word out about the 104(g) program. Among those plans are expanded content on the program’s Web page located at www.epa.gov/OWM/tomm.htm. A message board where trainers and wastewater treatment plant operators can share ideas, and an e-mail group Baranowski could keep informed through periodic broadcasts also are being considered.

“The Internet plays an important role in communications at EPA. And the more ways I can help improve communications among EPA officials and training center personnel, the more it benefits the program,” Baranowski explained. “Currently there’s an annual National Wastewater Operator Trainers’ Conference and that’s about the operators’ only chance to communicate with each other.” (See box on this page for information about the 2000 conference.)

“Certainly the Internet is a great way to get out information that EPA needs to get to state agencies and the training centers. They all have access and can get to the information.”

Despite his emphasis on Internet-based communications, Baranowski is well aware of the so-called “digital divide” that blocks many small, disadvantaged communities from accessing Internet-based resources.

“A lot of the communities that we assist just don’t have Internet access,” Baranowski conceded. “As time goes on, a lot more communities will have access regardless of their size and financial situation. But for now we have to go through more traditional means of getting the word out about the program to them.”

For instance, EPA is working on a small communities’ fact sheet that will be distributed to local officials.

Training is the key
Baranowski said one of the biggest problems facing wastewater treatment plant operators in many small communities is an unfortunate lack of knowledge about how their plants work.

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activities, Baranowski said. They generally did not provide any technical assistance.

That’s changing, he said, adding that it’s great that both state and federal regulators are becoming more involved in helping systems, especially small systems, remain compliant or achieve compliance.

As an example, when Baranowski first started working with the New Jersey Department of Environmental Protection (DEP), the division he worked in was named Water Enforcement. By the time he left the New Jersey DEP to join EPA, the division was renamed Water Compliance Assistance and Enforcement to reflect its increased focus on assistance activities.

Regulators are increasingly taking the approach that precious funds that small communities could be forced to surrender in the form of penalties could, in many cases, be redirected to solving the systems’ problems, according to Baranowski.

continued on page 14
Training Skills: Volunteers help organizations and themselves
by Susan Maczko
NETCSC Promotions Editor

If you staff or head a training center, you probably rely on the assistance of volunteers. Volunteers are an integral component of many organizations and provide much-needed expertise. Without them, some organizations would not survive financially. What motivates people to volunteer their time, skills, or expertise? Why would people choose your organization to donate their time to when there are hundreds of other agencies in need of assistance? How can your organization benefit from their resources? What training do you provide to get the most from your volunteers? Does your organization offer a “win-win” environment that attracts volunteers? Read on to hear the answers of experts in the field.

Motivation to volunteer

The desire to help others is usually the first reason people give for volunteering, but it is often more complicated than that. Other reasons cited by volunteers include the desire to gain leadership skills, to show commitment to a cause, to be challenged, to explore a career, to do something different from their regular paying job, to earn academic credit, and a personal experience with a problem or cause.

In recent years, volunteering has changed due to corporate downsizing, welfare reform, the increase in college graduates, and better training programs offered by organizations. Volunteering can give the unemployed, underemployed, and recent college graduates the opportunity to gain the experience, skills, and self-confidence needed to find paid work.

With many “baby boomers” entering retirement today, more seniors are volunteering to remain active, to meet new people, to keep from becoming isolated, to share their acquired skills, and to have fun.

Benefits to the organization

Volunteers bring a diversity of information and skill to an organization as well as excitement and passion. Many areas of expertise may be represented by volunteers: consultants, academics, trainers, corporate professionals, and homemakers, to name just a few. Volunteers help an organization grow by contributing new ideas and information, by helping to circulate the information and educate the public, and by exhibiting a new energy that infuses staff morale. Veteran volunteers feed on the enthusiasm of newcomers who in turn learn from the veterans.

Trained volunteers can be equipped to perform the tasks necessary to get an important job done. For example, West Virginia has several volunteer groups whose purpose is to work on water quality monitoring issues in conjunction with staff at the state Division of Environmental Protection (DEP). With 27,000 miles of streams in West Virginia, the volunteers make a major contribution by helping to “fill in the gaps” on water quality monitoring.

Benefits to the volunteer

Besides feeling good by helping other people, volunteers gain self-confidence when providing much-needed assistance. They often have the opportunity to learn and develop business and leadership skills, increase professional networks, and have access to new developments and information in a selected field. Volunteers have the freedom to experiment with new ideas or activities and have an unlimited opportunity to learn.

Prospective volunteers should take the time to explore their personal expectations of what they hope to gain from an organization. By identifying particular expectations and matching them with a potential organization, the volunteer will be happier and more likely to remain with the selected organization.

Sometimes people volunteer to live out their fantasies. People who are desk-bound on a daily basis may dream of working outdoors or perhaps want a chance to lead other volunteers. Family volunteering is another possibility. In many households, quality family time is becoming harder to fit into daily schedules. The whole family or one parent and a child may volunteer on a regular basis to share a common interest. Learning new skills together allows each family member to gain respect for each other while working toward a common goal. It also provides a mutual topic of conversation. Non-custodial parents through divorce may volunteer with their children as a chance to share something special together. When volunteering as a family, it is important to select a cause that will interest all the family members involved.

An economic benefit of volunteering is the general charitable contribution deduction of the continued on next page
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Internal Revenue Code. Eligible deductions may include automobile mileage for driving to and from the volunteer site, bus and cab fares, parking fees and tolls, required uniforms, travel expenses, and unreimbursed costs of meals and lodging while traveling on volunteer business.

Training volunteers

An organization should have an orientation program for volunteers that explains the policies, procedures, and guidelines of the organization. Volunteers should receive training necessary to perform the assigned tasks, regardless of their previous experience or expertise.

Consider your audience. Training may need to be adjusted for each volunteer group. Most people prefer at least part of the training to be “hands-on.” In addition, adult learners like to share personal experiences and knowledge. It is their life experiences that enable them to process the new information. Adults learn what they consider to be important and are motivated by the need to acquire a new skill.

Remember that volunteers are there because they want to be. If the training does not meet their expectations or needs, they may drop out of your program. Volunteers like to be actively involved and participate in the training sessions.

For instance, established training procedures for West Virginia DEP stream monitoring volunteers includes specific guidelines. Initial training involves six hours of instruction. The first two hours are classroom instruction followed by four hours of onsite experience.

Training topics include when, where, and how to take a sample; how to target optimum diversity; how to identify specific types of organisms; how to do the assessment and evaluation; and when to report findings to the state. Volunteers may then “adopt” a stream to monitor on a regular basis with an experienced volunteer until they are confident enough to work alone. At the end of their first year, volunteers take a written test to become certified. Because citizen volunteers are perceived as less credible than professional staff, training is very important.

How to have a “win-win” organization

An organization’s relationship with its volunteers can benefit everyone involved. The organization should make sure that the volunteer understands how to perform the tasks assigned, time restrictions, policies, and any laws or regulations concerning their duties. Trainers should be upbeat, knowledgeable, and available to answer any questions that the volunteers have.

Do not take your volunteers for granted! Show your appreciation by sending birthday cards to every volunteer, holding parties in their honor, writing thank-you notes on a regular basis, keeping track of their hours and presenting award pins at annual events, and including them in meetings or progress reports. If volunteers feel that they are appreciated and making a positive difference, they will likely stay with your organization.

Check out these Web sites for more information on volunteering:

- www.voa.org
- www.dnr.state.md.us
- www.globalchange.org
- www.envirolink.org/index.html

“Volunteers have style”

In the United States alone, nearly 100 million people volunteer each year. Today’s society needs these volunteers. They fill voids from inadequate funding, provide important services on a daily basis, and help people in times of environmental and other disasters. They offer their services to the community, the state, the nation, and the world.

Recognizing the important role that volunteers play, the United Nations General Assembly has proclaimed 2001 as the “International Year of Volunteers.” The United Nations plans to promote volunteerism and to recognize the contributions of millions of volunteers worldwide during this special celebration.

Erma Bombeck summed up the importance of volunteers in her essay, “The Volunteer:”

“Volunteers have style. They are fiercely independent. If you have to ask how much they cost, you can’t afford them. They are part of an aristocratic era that is disappearing from the American scene—a luxury in a world that has become very practical. They are civilization—at least the only part worth talking about. They are the human beings on the face of the earth who reflect this nation’s compassion, unselfishness, caring, patience, need, and love for one another. Their very presence transcends politics, religion, and ethnic background. They are a luxury too often taken for granted. It frightens me, somehow, to imagine what the world would be without them.”

E-TRAIN FALL 1999
New York’s got a plan

continued from page 7

The survey identified extensive training needs and demands. Priority topics were those selected by one-third or more of a group’s respondents. The surveys resulted in the identification of 58 priority topics for inspectors, 64 priority topics for operators, and 42 priority topics for the NYC watershed group.

The new plan schedules the delivery of 118 training programs from April 1, 1999, to March 31, 2004. It includes 20 to 28 programs per year with the delivery of the highest priority training programs early in the plan. Several of these high priority topics are scheduled for multiple deliveries.

Financial and resource commitments are critical to ensure the successful implementation of the plan. The NYSDEC formally endorsed the plan and will provide the necessary budget support for the design, development, and delivery of the seminars and workshops. Costs to implement these programs, in 1998 dollars, are shown in Figure 1. (See page 6.)

For more information or to obtain a free copy of New York State’s New Comprehensive Five Year Training Plan for Wastewater Plant Inspectors and Wastewater Plant Operators, write to Robert Wither, P.E., at the New York State Department of Environmental Conservation, Division of Water, Bureau of Watershed Compliance Programs, Room 340, 50 Wolf Road, Albany, NY 12233-3506; call (518) 457-0819; fax (518) 457-7038; or send e-mail to rewither@gw.dec.state.ny.us.

Baranowski leads EPA’s 104(g) training program

continued from page 11

“...They need to be trained on how to operate the systems. It’s not as easy as putting wastewater in and getting clean effluent out. That’s what is so good about us going out there to supply the training,” he said, adding that the 104(g) program can help.

System officials who could benefit from the assistance provided by the program should be referred to the 104(g) organization in their state. To find out which group is providing 104(g) assistance in a particular state, visit EPA’s Web site at www.epa.gov/OWM/sstc.htm or call the National Environmental Training Center for Small Communities at (800) 642-8301 or (304) 293-4191.

Baranowski can be contacted at EPA headquarters in Washington, D.C., at (202) 260-5806 or via e-mail at baranowski.curt@epa.gov.

Minnesota, Maryland programs educate homeowners about septic systems

continued from page 9

For more information about homeowner education efforts in Minnesota, contact Ken Olson at 13880 Highway 10, Elk River, MN 55330. He also can be reached at (612) 241-2721 or (800) 719-2825 or via e-mail at kolson1@extension.umn.edu.

For more information about Maryland homeowner education efforts, contact Thomas Miller at the Western Maryland Research and Education Center, 18330 Keedysville Road, Keedysville, MD 21756-1104. He also can be reached at (301) 432-2767, extension 326, or via e-mail at tommill@wam.umd.edu.
training resources

That’s Sludge with a Capital R
Developed by the New Hampshire Department of Environmental Services.

Description: This 24-minute educational video explains how managing sewage sludge as a resource can be used for the benefit of the community and the environment. Developed for the general public, local officials, and utility boards, this video outlines a game plan for small communities to evaluate sludge use and disposal options in planning and decision-making processes.

Video, 1993.................................$15 (loan)

Contact: New England Interstate Water Pollution Control Commission, Boot Mills South, 100 Foot of John St., Lowell, MA 01852; call (978) 323-7929; or fax (978) 323-7919.

Positively Sludge
Developed by the New England Interstate Water Pollution Control Commission Residuals Work Group.

Description: This 30-minute educational video was developed for the general public, local officials, utility board members, and assistance providers. It uses film footage, graphs, and interviews to define what sludge is, discuss how sludge is made, and show disposal methods.

Video, 1994.................................$15 (loan)

Contact: New England Interstate Water Pollution Control Commission, Boot Mills South, 100 Foot of John St., Lowell, MA 01852; call (978) 323-7929; or fax (978) 323-7919.

Guide to Septage Treatment and Disposal
Developed by the U.S. Environmental Protection Agency.

Description: This 70-page guide is designed to present practical information on the handling, treatment, and disposal of septage. It provides detailed engineering design information as well as graphs, tables, and illustrations. It has separate sections for administrators, inspectors and haulers, and facility managers and operators. It includes references, state and U.S. Environmental Protection Agency regional septage coordinators, and examples of local permits for septage disposal.

Item #WWBKGN58 Book, 1994............Free

Pipeline provides biosolids information

How to best treat and dispose of the residual waste materials that result from wastewater treatment processes (sewage sludge and domestic septage, for example) is a hot topic in many small communities. By managing these wastes as biosolids in accordance with federal, state, and local regulations, communities often can cost-effectively recycle and beneficially apply these wastes to improve soils or to rehabilitate land damaged by mining or other industries.

The Fall 1998 issue of Pipeline presents a brief overview of the options small communities have for managing biosolids and some of the requirements of the federal Part 503 regulations. It also includes information about the safety and benefits of biosolids recycling. Pipeline, a National Small Flows Clearinghouse (NSFC) publication, is written for the general public. Readers are invited to reproduce and distribute the information in Pipeline to help with public education efforts.

To request a free subscription to Pipeline or a copy of the Fall 1998 biosolids issue (Item #SFPLNL15; 20 cents each) call the NSFC at (800) 624-8301 or (304) 293-4191; write to NSFC, West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064; or e-mail nsfc_orders@mail.estd.wvu.edu.

Waste Management and Resource Recovery

Description: This 544-page book emphasizes scientific, technical, and environmental principles to illustrate the processes of municipal and industrial solid and liquid wastes and the impacts resulting from their disposal in the environment. Economic, social, legal, and political aspects of waste management are addressed.

Catalog #L572 Book, 1995...............$89.95

Contact: Lewis Publishers, 200 Corporate Boulevard NW, Boco Raton, FL 33431-9868; call (800) 272-7737 or (561) 994-0555; fax (800) 374-2401; or e-mail orders@crcpress.com.
**NSFC launches new wastewater publication**

Beginning in January 2000, the National Small Flows Clearinghouse (NSFC) will combine its two popular publications, the *Small Flows* newsletter and *The Small Flows Journal*, into one new magazine-style publication, the *Small Flows Magazine*.

The new magazine will continue to focus on small community wastewater issues and technologies. It will include the same quality peer-reviewed technical articles currently published in *The Small Flows Journal*, as well as the news, feature articles, and product information readers have come to expect from the *Small Flows* newsletter.

The new format will benefit readers by making the peer-reviewed technical articles available to a much wider audience. The magazine will be free to U.S. subscribers, and the mailing lists of the two current publications will be combined, increasing readership for the journal articles by as much as 43,000. The frequency of publication for the peer-reviewed articles also will increase from annually to quarterly.

In addition, the magazine’s new design and format will make the articles more visually appealing, inviting, and accessible to the public. The new format is in keeping with the NSFC’s mission to provide free and low-cost wastewater information to the residents and officials in small communities and rural areas who need it most.

*Current subscribers to the Small Flows newsletter and The Small Flows Journal automatically will receive subscriptions to the magazine. If you do not currently subscribe and wish to receive the new Small Flows Magazine, call the NSFC at (800) 624-8301 or (304) 293-4191.*

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