Editor’s Note: This article, the first of two, examines what is possibly the fastest growing sector of the wastewater industry—onsite training centers. Directors and representatives met last November, and you will learn what they think about establishing a center and keeping it viable. The summer E-train will continue with recent developments and what representatives see as the future for their centers and the industry.

In a precedent-setting meeting, 22 onsite wastewater training representatives from 15 states converged on the Environmental Services and Training Division (ESTD) at West Virginia University (WVU) in Morgantown to discuss the status and future of their centers. States represented included: Arizona, Delaware, Florida, Illinois, Kentucky, Michigan, New York, North Carolina, Oregon, Rhode Island, Utah, Vermont, Virginia, Washington, and West Virginia. The two-day meeting began on November 7 and included a tour of the National Onsite Demonstration Project (NODP) directed by the National Small Flows Clearinghouse (NSFC) at Chestnut Ridge, east of Morgantown.

For many reasons, these individuals met to discuss the dynamics of establishing and operating an onsite wastewater training center. For the first time, state representatives met with each other and with staff from two clearinghouses within ESTD—the National Environmental Training Center for Small Communities (NETCSC) and its “sister” organization, the NSFC.

Build it and they will come

John Mori, ESTD manager, invited directors of designated onsite training centers throughout the country to the two-day meeting. The purpose was to provide an exchange forum for information about developing and maintaining quality onsite training center programs. Discussion during this 48-hour assembly included two case studies of established centers (Rhode Island and Washington), issues and problems encountered when starting a center, layout options, training courses and technology, and operations.

“Build it and they will come” may answer some directors’ questions about establishing a training center in their states. Still others came to answer different questions: how to fund a training center, develop and deliver curricula, and provide technology for training; where to locate a demonstration site and how to acquire it; what personnel are needed; and so on.

“Over the past few years, there has been a steady increase in the number of onsite training centers throughout the country,” says Mori. “The programs at WVU—the NSFC, NETCSC, and the NODP—have contributed to the development of many of these programs by providing information, technical assistance, and other guidance on an as-needed basis.”

There are now more than 30 centers and programs (see sidebar on page 13). Mori says that ESTD recognized they may be able to help centers address program development, information, and training needs.

continued on page 12
NETA conference set

The National Environmental Training Association (NETA) has announced the final program for its Twentieth Annual Conference and Workshops April 25–29 in Bethesda, Maryland. Focus will be on environmental and occupational safety and health speakers and topics.

Pre-conference programs, on April 25 and 26, will center on instructional technology and environmental health and safety, with technical area presentations and workshops on the following days.

During these two days, the National Environmental Training Center for Small Communities will co-sponsor a trainer education delivery. “Troubleshooting and Optimizing Wastewater Treatment for Small Communities: Activated Sludge Module” will be presented by Ron Schuyler of Rothberg, Tamburini, and Winsor in Denver, Colorado. The conference ends with an advanced instructional technology workshop on April 29.

For a complete program of the conference, contact NETA headquarters at (602) 956-6099, by e-mail at Conference@ehs-training.org, or visit the NETA Web site at www.chs-training.org.

EPA publication database helps trainers

The U.S. Environmental Protection Agency (EPA) has announced a new public access offering, the National Environmental Publication Information Site (NEPI). You may now search and view 6,000 full image scanned publications and OCR (optical character recognition) text from the EPA public access server at http://www.epa.gov/cincl/.

The document images may be viewed using most commercially available World Wide Web browsers. Users do not have to purchase or download any other software or licenses to access the database of information.

For additional information before using the system, please click on the hypertext link, “About the Search Engine.” Questions may be directed to Shannon McFarland, project manager, at (513) 569-7762 or e-mail to wright.ed@epamail.epa.gov.

Host a satellite waste prevention forum

On June 17, 1998, the U.S. Environmental Protection Agency’s (EPA) WasteWi$e program will present a national satellite forum entitled “Waste Prevention Pays: Businesses Cut Costs by Cutting Waste.” This two-hour interactive forum will help businesses identify and implement money-saving waste prevention strategies. It will feature representatives of companies that have significantly reduced operating costs by implementing specific waste prevention measures.

“Waste Prevention Pays” will provide business decision makers with a framework for identifying costs savings throughout their operations. Participants will receive tools for locating and calculating potential savings at their facilities.

For more information on hosting a local downlink site, call (800) EPA-WISE or visit the Web site at http://www.epa.gov/wastewise.

NEHA conference offers a ‘winning hand’

The National Environmental Health Association’s (NEHA) 62nd Annual Educational Conference and Exhibition is scheduled for June 27–July 1. In conjunction with the conference’s being held in Las Vegas, this year’s theme is “Complete Your Winning Hand.” More than 2,000 environmental health and other professionals are expected to attend.

The conference will cover topics ranging from food protection, water and indoor air quality, onsite wastewater, environmental health management, hazardous waste, emerging pathogens, and computer information. Special events include a tour of the Alfred Merritt Smith Water Treatment Facility and onsite wastewater system demonstrations.

Special workshop topics include drinking water quality, emerging pathogens and disease prevention, environmental health management, and hazardous materials and waste, among others.

Full conference registration before June 13 is $359 for NEHA members and $459 for nonmembers.

For more information, call (303) 756-9090 (weekdays, 8 a.m. to 5 p.m., Mountain Time), or see NEHA’s Web site at http://www.neha.org.
Household hazardous waste cybercourse offered

Household hazardous waste training is now available on the Internet. The University of Missouri’s (UM) Household Hazardous Waste Project has developed the country’s first cybercourse on the subject. *From Awareness to Action!* is designed for solid waste planners, health officials, government officials, educators, and anyone interested in protecting their home and community from household hazardous wastes.

The self-paced, train-the-trainer course can be completed in approximately 25 hours and offers 2.5 continuing education units. The nine lessons cover such issues as how to identify hazardous products, exposure and health effects, interpreting product labels, safety equipment, environmental impact, community education, and management. The course will be offered in June and September. The cost of the program and all course materials is $125.

Contact UM Extension Teaching at (800) 545-2604, or register online at http://www.mucourses.missouri.edu.

Pipeline poster available

A new poster illustrating various resources available for small communities is free by request from the National Small Flows Clearinghouse (NSFC). The poster depicts drinking water, wastewater, financial, and environmental training resources available from the NSFC and its “sister” organizations, the National Drinking Water Clearinghouse (NDWC) and the National Environmental Training Center for Small Communities.

The poster can be a guide for anyone wanting to locate information about the options and resources that exist for small communities. The poster is also a “visual index” of previous *Pipeline* issues and other Environmental Services and Training Division newsletters, including the NDWC’s *Water Sense* and *On Tap*. Topics covered in the newsletters include drinking water, financing and funding, training for system operators, hiring consultants, and public health.

To receive a poster, call the NSFC at (800) 624-8301 or (304) 293-4191, and ask for Item #WWPSPE36. You may also request a copy via fax at (304) 293-3161, by e-mail at nsfc_orders@estd.wvu.edu, or visit the Web site at http://www.nsfc.wvu.edu. Shipping and handling charges will apply.

Watershed management conference set for Denver

The Water Environment Federation (WEF) is sponsoring a specialty conference, Watershed Management: Moving from Theory to Implementation, May 3–6 at the Colorado Convention Center in Denver.

Topics include watershed planning, protection, restoration, and education; and issues related to western and arid lands, such as water rights, quantity and scarcity, mining, watershed crisis, and water reuse.

The conference is specifically designed for government and public works officials, lawmakers, educators, wetland scientists, regulatory agencies, civil and environmental engineers, environmentalists, hydrologists, equipment manufacturers, wastewater managers, and consultants.

Advance registration is $450 for WEF members, $540 for nonmembers.

For more information, contact WEF at 601 Wythe St., Alexandria, VA 22314, or phone (703) 684-2400.

NOWRA calls for papers

The National Onsite Wastewater Recycling Association (NOWRA) has issued a call for papers for its 7th Annual Conference and Exhibits on October 22–25, 1998, in northern Kentucky.

Presentations should provide material of interest to private sector, regulatory, or academic communities, including how-to presentations relating to system installation, management, or maintenance; new designs or concepts; innovations in system regulation; case studies; or research results.

NOWRA brings together all segments of the onsite wastewater recycling profession, including regulatory, academic, research, testing, design, consulting, manufacturing, installing, and servicing to promote and improve the use of onsite practices for managing wastewater.

Proposals are requested by May 15 and should be sent to NOWRA headquarters, P.O. Box 647, Northbrook, IL 60065-0647. To receive a proposal form, contact NOWRA headquarters at (800) 966-2942, fax a request to (847) 559-9235, or e-mail to 103061.1063@compuserve.com.
Mark your calendar for three upcoming training sessions co-sponsored by the National Environmental Training Center for Small Communities (NETCSC).

In conjunction with NSF International’s Safe Drinking Water for Small Systems International Symposium, sessions on “Disinfection” and “Water and Wastewater System Development” are scheduled May 10 in Washington, D.C. “Disinfection” covers fundamentals of the disinfection process and is being delivered by the University of Michigan Department of Environmental Industrial Health, with support from NETCSC. “Water and Wastewater System Development” is designed to help officials make effective decisions about community water and wastewater services.

Focusing on both traditional and nontraditional strategies for providing water in small systems, the symposium will showcase feasible treatment technologies, operating procedures, and financing opportunities to alleviate the problems faced by many small water systems in both developed and developing countries.

The symposium is co-sponsored by NSF International’s WHO Collaborating Centre for Drinking Water Safety and Treatment, the Pan American Health Organization, and the World Health Organization. Additional sponsors include NETCSC, the National Drinking Water Clearinghouse, the U.S. Environmental Protection Agency, the National Water Research Institute, Health Canada, the National Rural Water Association, the American Water Works Association, the World Bank, and the Chlorine Chemistry Council, among others.

A third NETCSC training session, “Reducing Commercial and Industrial Solid Waste,” is slated for April 30–May 1 in Albuquerque, New Mexico. The program trains solid waste managers on how to develop a business and industrial solid waste reduction program.

To register for the NSF sessions or for more information about the symposium, call Nancy Hearne at (202) 289-2140. To register for the solid waste training, call Will Hoffman, City of Albuquerque Solid Waste Management Department, at (505) 761-8174.

For more information about other NETCSC training programs and services, contact Sandy Miller, conference services representative, at (800) 624-8301 or (304) 293-4191, ext. 5536.

Nominations open for NETCSC Advisory Council

Through June 30, the National Environmental Training Center for Small Communities (NETCSC) is accepting nominations and applications to fill vacancies on its National Advisory Council (NAC).

The NAC was formed in 1991 to provide independent advice and recommendations on training needs for small communities in the areas of wastewater, drinking water, and solid waste. NAC members also promote and provide feedback on NETCSC services and products.

NAC members represent service providers, trainers, environmental professionals, and experts in small community regulations, training, and environmental issues.

Please send a letter of nomination or application, including the name, title, and qualifications by June 30 to Randy Levelle, senior program administrator, NETCSC, P.O. Box 6064, West Virginia University, Morgantown, WV 26506-65064, or fax your nomination to (304) 293-3161.

Discuss training issues online

Trainers now have the opportunity to ask for advice, share experiences, or help a fellow trainer, all from the convenience of a keyboard and Internet Web browser.

Join other trainers online at NETCSC’s new trainers’ discussion forum where you can participate in such current discussions as lowering the cost of training sessions, improving evaluations, or understanding how you can use distance learning.

Users may read messages posted by others, reply to them, ask questions, or add comments concerning environmental training. Current users have found the forum to be a great way to network with others who share a common interest.

To access the forum, visit NETCSC’s Web site at http://www.netc.wvu.edu.
Casper College partners for ‘first’ Internet test

This fall, Wyoming became the first state in the nation to use the technology of the Internet to provide state water, wastewater collection, and distribution certification exams over the Internet. The exams were offered at 12 sites across the state ranging from sewer district offices to community colleges. The largest number of tests were given at Casper College.

Louise Cordova, certification officer with the state Department of Environmental Quality, Water Quality Division, says that the department went with Casper College as one of the first sites to use this new approach because they were cooperative and were willing to allow the state to use computers connected with the Internet at no charge.

Currently the state of Wyoming requires operators and those wishing to get into the field or receive higher certification to take examinations. According to Wyoming Department of Environmental Quality information, “separate examinations will be prepared to cover the basic differences in duties and responsibilities associated with the varying complexities and sizes of water and wastewater treatment plants and collection and distribution systems.” That means the state of Wyoming conducts 10 exams covering 523 categories, according to Cordova.

Approximately 100 people from across the state participated in this first-ever Internet testing system. One advantage of this method is that each person views his/her score immediately. To receive certification in a particular area, each person must score a minimum of 70 percent on that exam.

Bill Mixer, who served as proctor for the Casper test, notes that the tests are skill- and knowledge-based. “Each different test checks for minimum skills and knowledge that relate to the field or the higher certification level that the person is trying to receive. There are all levels of workers at these plants; however, they are constantly working under certified operators,” he adds.

The reaction of the initial group of Internet-based test takers was positive.

If you would like more information regarding the use of the Internet for exams, please contact Cordova at the Wyoming Department of Environmental Quality at (307) 777-6128, or Mixer at Casper College at (307) 268-2670.

America Recycles Day
Put your money where your trash is

by Jeffrey S. Bailey
NETCSC Contributing Writer

“Something old, something new, something borrowed . . .” part of an old adage that takes on a different meaning when the focus is recycling. After all, isn’t the driving force behind recycling the notion that old and used resources are made new and useful again?

In that vein, this past November 15 marked the advent of a new program in the continuing effort to educate the public about the benefits of recycling and buying recycled products.

America Recycles Day was established to encourage people across the country not only to step up their recycling activities, but also to make a pledge to buy recycled products. Buying recycled content products is an important component in the reduce, reuse, recycle mantra because consumers create and ensure a demand for these goods.

Across the nation, events took place to kick off the inaugural year of America Recycles Day. For instance, a “Green Elvis” sang at a Kansas City recycling center, and a skydiver landed in a gathering at a recycling fair in Sarasota, Florida. “On the first America Recycles Day, we reached millions of Americans with a recycle and buy recycled message,” says Fran McPoland, national co-chair. “Our partnership captured the public’s attention through national and local media, and we reinforced the message at an estimated 3,000 local events sponsored by governments, workplaces, schools, and environmental groups.”

In another move to get the word on the street about recycling, a contest was held with the grand prizes being a house built primarily of recycled products and a student trip to Disney World for four. The drawing, sponsored by the national America Recycles program, took place in Washington, D.C. on December 15, 1997.

“The American Green Dream House is a unique showcase for the wide range of recycled content products that are readily available to today’s consumer,” says Bill Heenan, president of the Steel Recycling Institute and national co-chair of America Recycles Day.

For more information about America Recycles Day, please contact Kevin Tuerff, national event director, at (512) 476-4368, or visit the America Recycles Day Web site at http://www.americarecyclesday.org.

Earth Day 1998 is April 22!

Mark your calendars for Wednesday, the fourth week in April. This year thousands of Earth Day events are planned nationwide. Remember to participate in local Earth Day activities in your community.

For information about this year’s Earth Day celebrations around the world, visit http://www.earthday.org/index.html.
Mandatory operator certification is one of the most significant changes to come through the Safe Drinking Water Act (SDWA) Amendments of 1996. Although the U.S. Environmental Protection Agency (EPA) is not expected to publish its final guidelines for operator certification until February 1999, the agency is now considering baseline standards. These standards are under review and are scheduled to be available for public comment in March 1998.

The EPA is working through a partnership with several members of the National Drinking Water Advisory Council (NDWAC). This partnership is known as the Operator Certification Working Group or simply “the Partnership.” It brings together states, water systems, and the public to gather information for recommended operator certification requirements.

“What we’ve done is develop baseline standards that will be incorporated into the EPA’s Draft Operator Certification Guidelines, which are scheduled for publication in the Federal Register in March,” says Rick Naylor, designated federal officer, Operator Certification Working Group. “There will be a 60-day public comment period, and the Partnership is expected to meet in late May or early June to review the public comments and recommend any changes.”

Certification ensures operator competency, and thereby increases the likelihood that drinking water testing is performed correctly. Here, Larry Rader of the Kjell Corporation demonstrates how skilled lab work helps control pretreatment processes.

Certification protects public health

Although many states already have mandatory certification programs in place, some may have to make changes to existing legislation or regulations to meet federal guidelines. Without those changes, states could lose 20 percent of their drinking water state revolving fund (DWSRF) grants.

“What makes operator certification so important is that it ensures a certain standard of competency in the men and women who run treatment plants and distribution systems,” notes Edwin Cady, senior water resources specialist, in From Watershed to Well.

“Drinking water operator competency is critical for the protection of public health and the maintenance of safe, optimal, and reliable operations of water treatment and distribution facilities,” notes the EPA’s project plan published on March 19, 1997.

“Minimum federal guidelines ensure that operators have the operational skills, knowledge, experience, education, and training required to operate a water system. Once operators are initially trained and certified, regular recertification will ensure continual competency,” continues the EPA project plan.

To maintain their certification, operators will likely be facing ongoing training requirements. “Training opportunities are likely to increase with these new requirements—particularly the certification renewal requirement—should they become a part of the federal guidelines,” says John Hoornbeek, training research associate with the National Environmental Training Center for Small Communities (NETCSC).

“No minimum training is provided in the regulations,” Hoornbeek says. “Thus, states can make their own decisions about what training is necessary.”

Some states are already preparing training programs. For example, the Pennsylvania Department of Environmental Protection (DEP) is conducting a needs assessment to determine what kinds of training will be necessary. “We’re trying to figure out what we need to do so we can hit the ground running when the regulations are finalized,” says Charles Spacek, district field representative, DEP.

“We know there will be a definite need and demand for training,” he continues. “We want to conduct a thorough investigation in Pennsylvania so we will know what needs to be available, what the best delivery will be, what the format of the training will be, and what’s already available.” Representatives from Pennsylvania’s DEP met with Hoornbeek continued on next page
and other staff at NETCSC this past fall to identify drinking water training resources that they can use in their program.

What is the baseline?
The Partnership offers these nine baseline recommendations:

- **Authorization.** This recommendation gives states the legal authority to implement an operator certification program, requiring the certification of all operators of all community and nontransient, noncommunity water systems and to require that the systems comply with the appropriate requirements of the program.

- **Classification of systems, facilities, and operators.** States shall require classification of all community and nontransient, noncommunity water systems based on indicators of potential health risk, such as—but not limited to—complexity, size, and source.

- **Operator qualifications.** Applicants must take and pass an exam that demonstrates that the applicant has the appropriate skills, knowledge, ability, and judgment to operate a drinking water system.

- **Enforcement.** States must apply appropriate consequences for failure to comply with operator certification requirements. These enforcement measures should include administrative orders, bilateral compliance agreements, criminal or civil administrative penalties, and stipulated penalties. Enforcement against the operator should include suspending or revoking certification for misconduct such as fraud, falsification of application or operating records, gross negligence in operation, incompetence, operating without a valid certificate, or failure to use reasonable care or judgment in the performance of duties.

- **Certification renewal.** Ongoing training is necessary to ensure the protection of the public’s health. States shall establish training requirements for renewal based on the level of certification held by the operator. States must have a fixed cycle of renewal not to exceed every three years.

- **Resources needed to implement program.** States shall provide sufficient resources to adequately fund and sustain the operator certification program, including components such as staff, data management, testing, enforcement, administration, and training.

- **Recertification.** This process should include review of the individual’s experience, training, and reexamination.

- **Stakeholder involvement.** This helps to ensure the relevancy and validity of the program and the confidence of all parties. A stakeholder board or advisory committee is strongly recommended.

- **Program review.** States shall perform regular program reviews. These reviews should cover regulations, exams and exam scores, exam items for relevancy and validity, compliance, enforcement, budget and staffing, training relevancy, training needs through examination performance, and data management systems.

For more information about operator certification, visit the EPA's Web site at http://www.epa.gov/OGWDW/, where you will find a calendar of events to keep you informed. From the calendar of events, Operator Certification Working Group meeting summaries can be accessed. Or call the Safe Drinking Water Hotline at (800) 426-4791.
Computer-based training aids
Helping trainers do their jobs better

by Jamie Knotts
NETCSC Promotions Editor

Editor's Note: This is the second of two articles about computer-based training. The first (Winter 1998 E-train) examined computer-based training packages or “tools” used to deliver training. This article focuses on the “aids” that help a trainer complete nondelivery tasks. Some may use the terms interchangeably, but here we use “aids” to describe the technology used for nondelivery activities.

It seems as though nearly everything you read or hear today has a reference to computer technology. Are you online? What’s your e-mail address? Do you use a Mac or IBM-compatible system? Have you tested the latest computer-based instruction software?

Who couldn’t have noticed the impact that computers have had on our lives? From the ease of spell checking and proofreading a memo to accessing the latest news, research, or technical assistance online without even leaving your office, computers have brought greater productivity and efficiency to our lives. But what has been the impact of computer applications on training?

What’s available?

Nowadays, trainers are using computers for more than just typing letters and tracking expenses. One of the latest advances for trainers has been the introduction of numerous software applications. These computer-based training aids are helpers that trainers can use to organize their tasks, all the while improving efficiency and productivity.

Software development companies have obviously recognized the importance and usefulness of these aids to trainers because they have rolled out numerous training-related software packages. If there’s a job to do, then there’s likely an application program to complete the task.

Timothy Lee, a computer training specialist with the University of Arkansas at Little Rock, Arkansas Small Business Development Center, uses training aids on a regular basis. He uses presentation software to convert training materials into slides and transparencies and offline Internet browsers to capture entire Web sites to avoid Internet connection problems, common due to the flood of users.

“Training aids will only increase over time, especially in the area of authoring for Internet-based training.”
Timothy Lee, computer training specialist

“There are plenty of training aids available,” Lee says. “Tools range from instructional design aids that create complete training programs to packages that create training exercises to full management and analysis aids.” He adds that the number of training aids will only grow. (For a list of tasks that software perform, see sidebar on page 9.)

“Training aids will only increase over time, especially in the area of authoring for Internet-based training,” Lee says. “The U.S. Air Force is working on a program that enables subject matter experts with little instructional design background to develop complete courses including workbooks, lesson plans, and overheads.

“This is a very exciting project,” adds Lee. “Copies of the software are already being used in education to develop some interesting courses for technical industrial skills training.”

Tradition or new technology?

But knowing that the software is available to complete the task and actually using it are two different things. What is the advantage of using cutting edge technology rather than traditional methods? After all, trainers have gotten by just fine for years without fancy software packages. Right?

Lee might see it differently.

“The biggest advantage of training aids is usually the savings in labor, which is also the largest expense in program development,” he says. “The second advantage is the time savings which allows programs to be developed and brought to the market quickly.”

A survey of several training magazine advertisements shows that most software companies market their products as “user-friendly,” taking advantage of templates and prompts to speed up task completion. Most appear to be customizable and flexible, relying heavily on interactive input.

Jerry Andersen, owner of WJ/A Systems, a training and information systems engineering business in Colorado, uses a number of CD-ROM and Web-based aids to develop material and improve the delivery of his material.

“These have been interactive, multimedia applications—animation, video, audio—for learning,” he says. Andersen notes that their advantage is that they seem to accelerate learning, but adds that they do not replace good old-fashioned study.

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Lee cautions that software applications have their limitations for trainers. “I see the over dependence on the software and its use as a crutch by less experienced instructional designers as the biggest drawback,” says Lee. “Individuals tend to become lazy and not seek to master the finer points of training, design, and development. Then, they and their products suffer from not being developed to their highest level.”

Andersen adds, “If the application documentation is the only resource of information, the trainer can get trapped in the developer’s vision of the software. Most application documentation I’ve used seems afraid to document software limitations or anomalies.”

Requirements: Skills and hardware

While both trainers agree that the applications they’ve used have been relatively easy to learn because of their computer experience, they note that most training aids are usually not recommended for novices.

Andersen says that with experience “if you pay attention to the ‘read me’s,’ the learning curve is not long at all, usually within 30 minutes. I did, however, have one software package, designed for puzzle solvers, that I never did get running adequately to use as a learning aid.”

Lee recommends that users of software applications have some basic skills. “They should have the ability to read technical instructions and a bit of curiosity to ‘push the software’ and discover its capabilities and limitations.” He also adds that users should have a knowledge of adult learning principles and the instructional design process. “A cute exercise or computer program is no substitute for value-added training that accomplishes the objectives and aids in training.”

As for computer requirements, most software advertisements advise users to have at least a 486SX or higher system running Windows 3.1 or 95, with 8MB RAM, and 20MB hard drive space. Very few training aid software packages appear to be available for the Macintosh aside from standard office-related packages.

“Trainers need ‘robust’ systems if they are going to use these memory-intensive, multimedia training programs using lots of graphics, sound, and video,” Lee says.

Jerry Andersen, an information systems trainer for nine plus years, sees training tools becoming less directive and more coaching in the future.

And don’t forget that trainers still must pay for these computer-based training resources. Expect to pay from the low end of $50 per user to upwards of $1,000 for some premium applications. However, many can be found in the $50 to $150 range.

So would the low-end priced products be useful, or does a trainer need to remember “you get what you pay for”? “Not necessarily,” says Andersen. “Cost and quality seem to be unrelated, strangely enough. I have been equally victimized by costly goods.” He adds that recommendations from others are always a safe bet, if you know them. Reviews in professional magazines are also good sources. “But remember,” he cautions, “it’s a jungle out there—caveat emptor, dude!”

Jerry Andersen, an information systems trainer for nine plus years, sees training tools becoming less directive and more coaching in the future.

Some tasks software performs . . .

- manage online enrollment
- coordinate administrative tasks
- schedule appointments
- track resources
- prepare budgets, visuals, and graphics
- create reports and evaluations
- author course outlines and curricula
- prepare needs analyses
- create and administer examinations
- assess skill levels
- design Web sites
- make, tabulate, and analyze surveys
- create games and homework assignments
- improve writing skills
- conduct online conferencing
- organize human resource tasks
- customize employee policies
- guard against lawsuits and liability
Drinking water management options, regionalizing environmental services and management, specialized onsite wastewater training, and natural disaster preparedness for small systems topped the list of subjects in a recent training needs review (TNR) conducted by the National Environmental Training Center for Small Communities (NETCSC).

Defining small community needs
NETCSC regularly reviews training and information needs in small communities to define water, wastewater, and solid waste topics for additional training information and assistance. These findings guide the development and delivery of NETCSC products and services so that in one way or another NETCSC may begin or continue to address each of these needs. Our goal is to develop curriculum or other training materials to provide information that helps trainers and other assistance providers understand and address these needs, and enter into partnerships that leverage resources to assist small communities.

The review generates valuable information to help NETCSC and others become more effective and efficient in the delivery of services, but it can also be frustrating to see some of the same needs emerge again from one year to the next.

The recent NETCSC review, conducted during 1997, resulted in a list of approximately 20 topics with training implications for small communities. These topics emerged from a five-step process that included information gathering from training and technical assistance providers, and an analysis of previous and future needs.

Community needs were verified through discussions with NETCSC’s 12-member National Advisory Council, comprised of professionals with expertise in NETCSC’s emphasis areas—drinking water, wastewater, and solid waste, as well as environmental training.

A brief review of four of the topical areas pertinent to NETCSC’s mission follow. A list of the topical areas identified during the needs review is presented in the sidebar at the bottom of the following page.

Drinking water management options
Re-authorization of the Safe Drinking Water Act brought attention to communities’ need to assure the viability of their drinking water systems. In small communities, local officials must make informed decisions about the alternatives available for developing new or upgrading older systems.

The NETCSC review found that these local officials need information not only on alternative technology options but also on the decision-making process, how to plan for and finance these options, and on the basic regulatory requirements that must be addressed. In response to this need, NETCSC is developing a curriculum scheduled to be released early next year.

Community-based environmental management
In recent years, a number of states have experimented with efforts to assist small communities in setting priorities and managing their water, wastewater, and solid waste
services in a coordinated fashion. The training needs review found that regulatory officials and technical assistance providers are asking for information on how to work cooperatively with small communities, how to help them set their own environmental priorities, and manage these services in an effective and cost-efficient way.

**Specialized onsite wastewater training**

Over the past few years, there has been a significant increase in the number of onsite wastewater training centers established in states and regions around the country. At last count, there were more than 30 centers and programs that have been or are in the process of being developed (see front-page article on onsite wastewater training centers). Although some of these centers are well established, many are in the early stages of development, and all can benefit from additional training curricula addressing onsite wastewater systems.

While NETCSC has taken a leadership role in assisting the development of some of these centers, as well as in facilitating the sharing of training and other information resources, further development, enhancement, or model transfer of courses could be of help. In particular, instructional materials that address siting, designing, installing, troubleshooting, or managing onsite wastewater systems could be expanded.

**Natural disaster preparedness**

The El Niño effect has highlighted the impact that natural disasters can have on water and wastewater systems in small communities. Planning and preparation can prevent or reduce the destruction produced by such events. Relief may be available after the fact, but NETCSC has found that there is need for training to instruct operators and utility managers on preparing for or minimizing the risk of a disaster’s impact on these systems. Additional information on how to recover after a disaster and how to work with emergency and disaster services would also be beneficial.

**More players, better results**

NETCSC is positioning itself to address these needs. NETCSC will continue to build its network of partners to develop and deliver training information and resources throughout the country.

By addressing our nation’s infrastructure needs in this way, NETCSC and other training and technical assistance providers will continue to help build small community capability to improve small community health and environmental conditions.

*Previous training needs reports are available, including* the 1994 Small Community Environmental Training Trends and Issues for $3.05, the 1995 Small Community Environmental Training Trends and Issues for $3.75, and the 1994 Final Report: Training Needs Assessment for $9.05. *The 1997 Training Needs Review will soon be available.* To order, contact NETCSC at P.O. Box 6064, West Virginia University, Morgantown, WV 26506-6064, by phone at (800) 624-8301 or (304) 293-4191, or by fax at (304) 293-3161. Shipping and handling charges will apply.

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**Additional training needs . . .**

**Wastewater, Drinking Water, Solid Waste**

- Environmental regulation and compliance, especially SDWA and sludge/biosolids
- Financing small systems
- Health and safety for operators
- Troubleshooting and optimizing drinking water treatment
- Wellhead/groundwater protection
- Planning solid waste options for tribal communities
- Land application of wastewater
- ISO 14000
- Pollution prevention for vehicle maintenance
- Lead poisoning and abatement

**Training Related**

- Delivering “hands-on” environmental training
- Using technology to deliver environmental training
- Evaluating environmental training
- Adults and environmental training

Note: This list is not meant to suggest that there is no training or information available on the topics given; it suggests, however, that there is a greater training and information need for small communities.
Onsite reps meet, discuss goals, needs

continued from page 1

“We knew there are several excellent, well established onsite centers that have the potential to influence the development of the new centers by sharing their formulas for success,” says Mori, adding that ESTD was especially interested in learning from those who are running successful programs.

“We thought it would be helpful to learn from the representatives about the specific ways our programs may be able to assist them with their centers’ activities,” he adds.

Centers gain momentum

A few states’ training centers, such as North Carolina, Rhode Island, and Washington, have operational training centers; however, most are “getting established,” and some are in the preliminary stages and seeking information about how to establish a training center.

For example, Paul Chase, environmental health program coordinator with the DuPage County Health Department in Wheaton, Illinois, came on a fact-finding mission. In 1997 the Illinois legislature established an Onsite Wastewater Commission on which Chase sits. The proposed training center has assembled a core of interested people associated with health and wastewater organizations and has been offered a donation of 20 acres of land next to a creek.

“We’re in the preliminary stages,” says Chase. “Now we need to know how to set up the center.”

Other states, such as Florida, have demonstration sites in operation but are looking for a site to establish a permanent training center. In contrast, Arizona had a site that is no longer available, and the equipment must be moved.

“Once we realized that we were behind on onsite wastewater treatment technologies, we took NETSCC’s ‘Onsite Wastewater System Operation and Maintenance’ course,” says James Harrell, president of the Onsite Wastewater Association of Arizona (OWA©). “We had a demonstration site in a county park and offered one course. Now that site is no longer available, so we have to find another.”

Because they have established training centers, North Carolina, Washington, and Rhode Island representatives came to share information on their processes as well as to collect information.

North Carolina, for example, has operated onsite wastewater training centers since 1990. Today, there are four in the state: two use clean and “dirty” water, but the others run with only clean water. The center at Chatham also conducts research.

Rhode Island’s training center was established in 1993 with “a lot of sweat equity,” according to George Loomis, the center’s director. “It was a partnership effort; the work came from many different people,” he says.

Washington’s center opened in 1995 and has a series of classes for each “group” in the industry, including those geared more toward the practitioner. “We try to make the training as hands-on and practical as possible,” says Dave Lenning, director of training. “The more we do that, the more adults want.”

Starting a center

Getting a training center started is a challenge. There are myriad considerations and decisions, including writing bylaws, deciding on a suitable location then finding a site, and funding, not to mention selecting demonstration technology, building classrooms, and developing curricula.

Many of the centers have entered into partnerships with associations and organizations, as well as with colleges and universities. Several states have bolstered their efforts by forming new onsite wastewater associations like OWA©, KOWA (Kentucky Onsite Wastewater Association), and WOSSA (Washington Onsite Sewage System Association). Plus, work with state legislatures plays a significant role in several aspects of establishing a center, not the least of which is funding.

Most would agree with Tom Rogers, who is on the Civil Engineering faculty at Umpqua Community College in Roseburg, Oregon, that “money is the biggest issue.” Funding—often in the form of seed money or partial financing—includes grants from colleges, universities, and state and federal government. For example, North Carolina’s initial funding came from the State General Assembly; Kentucky’s funding was added to a federal line item appropriation, and the Texas On-site Wastewater Treatment Research Council funded a center in that state.

Regardless of the sources, financing a training center reflects resourcefulness and creativity. Donations of five to 10 acres of land are relatively common, and equipment is often donated by private industry.

“We got a composting toilet through an
## Onsite wastewater training

The following list represents centers, programs, and associations offering onsite wastewater training in the United States and Canada.

<table>
<thead>
<tr>
<th>State</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>Alabama Onsite Training Center* • Contact Lesley Garner, (205) 652-3400, ext. 3242</td>
</tr>
<tr>
<td>AL</td>
<td>Alabama Onsite Wastewater Association* • Contact Micheline Shaddix, (205) 734-4815</td>
</tr>
<tr>
<td>AZ</td>
<td>Arizona On-Site Wastewater Training Center • Contact Colin Bishop, (520) 226-0607</td>
</tr>
<tr>
<td>AZ</td>
<td>Northern Arizona University* • Contact Dr. Paul Trotta, (520) 523-4330</td>
</tr>
<tr>
<td>AZ</td>
<td>University of Arizona Maricopa Agricultural Center* • Contact Dr. Jack Watson, (520) 568-2273</td>
</tr>
<tr>
<td>CA</td>
<td>California On-Site Wastewater Training Center Contact • Dr. Ken Derucher, (530) 898-5963</td>
</tr>
<tr>
<td>CO</td>
<td>Colorado Environmental Health Association/Colorado School of Mines** • Contact Dr. Robert Siegrist, (303) 273-3490</td>
</tr>
<tr>
<td>DE</td>
<td>Environmental Training Center at Deltech** • Contact Jerry Williams, (302) 856-5776</td>
</tr>
<tr>
<td>FL</td>
<td>Florida Septic Tank Association, Inc. • Contact Dr. Sonia Cruz, (407) 317-7325 or Bob Lynch, (904) 454-4030</td>
</tr>
<tr>
<td>GA</td>
<td>Georgia Onsite Wastewater Association* • Contact William Banks, (770) 889-2708</td>
</tr>
<tr>
<td>IL</td>
<td>Illinois Onsite Wastewater Commission* • Contact Paul Chase, (630) 682-7979</td>
</tr>
<tr>
<td>KY</td>
<td>Kentucky Onsite Training Center* • Contact Harry Nurse, (502) 267-1222, or Wes Combs, (502) 564-4856</td>
</tr>
<tr>
<td>MI</td>
<td>Michigan Onsite Wastewater Recycling Association • Contact Dan Milan, (517) 773-9938</td>
</tr>
<tr>
<td>MN</td>
<td>Minnesota Onsite Contractors Association* • Contact Ken Poliska, (612) 433-4178</td>
</tr>
<tr>
<td>MS</td>
<td>Missouri Small Wastewater Flows Education and Research Center • Contact Dennis Sievers, (573) 882-7855</td>
</tr>
<tr>
<td>NY</td>
<td>New York Onsite Wastewater Association/SUNY-Morrisville Environmental Training Center* • Contact Douglas J. Nelson, (315) 684-6191</td>
</tr>
<tr>
<td>NC</td>
<td>North Carolina State University On-Site Wastewater Training Facility • Contact Mike Hoover, (919) 515-7305</td>
</tr>
<tr>
<td>ON</td>
<td>Ontario Onsite Sanitary Sewage Training Program** • Contact J.P. Ferron, (416) 585-7382</td>
</tr>
<tr>
<td>OR</td>
<td>Oregon On-Site Wastewater Training Center • Contact Tom Rogers, (541) 440-4683</td>
</tr>
<tr>
<td>RI</td>
<td>University of Rhode Island On-Site Wastewater Training Center • Contact George Loomis, (401) 874-4558 or David Dow, (401) 874-5950</td>
</tr>
<tr>
<td>TN</td>
<td>Tennessee Onsite Wastewater Association • Contact Tom Petty, (615) 299-9725</td>
</tr>
<tr>
<td>TX</td>
<td>On-Site Wastewater Treatment Training Center • Contact Dr. Bruce Lesikar, (409) 845-7453</td>
</tr>
<tr>
<td>TX</td>
<td>Texas Onsite Wastewater Association* • Contact Dr. Dudley Burton, (817) 755-3405</td>
</tr>
<tr>
<td>TX</td>
<td>International Onsite Wastewater Treatment Training Center* • Contact Raymond Bader, (915) 859-7725</td>
</tr>
<tr>
<td>TX</td>
<td>South Texas International Onsite Wastewater Treatment Training Center* • Contact John Drew, (956) 968-5585</td>
</tr>
<tr>
<td>UT</td>
<td>Utah Onsite Wastewater Treatment Training Center* • Contact Steven Iverson, (435) 797-3159; Phil D. Wright, (435) 654-2700; or Joel B. Hoyt, (435) 753-5135</td>
</tr>
<tr>
<td>VT</td>
<td>Northern New England Wastewater Training Center • Contact Richard Perez, (802) 234-9279</td>
</tr>
<tr>
<td>VA</td>
<td>Virginia Onsite Wastewater Recycling Association* • Contact Robert Mayer, (800) 345-3132, ext. 103</td>
</tr>
<tr>
<td>WA</td>
<td>Northwest On-Site Wastewater Training Center • Contact Dave Lenning, (360) 455-8880</td>
</tr>
<tr>
<td>WV</td>
<td>West Virginia Onsite Wastewater Training Center* • Contact Mike Alton, (800) 624-8301 or (304) 293-4191</td>
</tr>
<tr>
<td>WI</td>
<td>University of Wisconsin Small Scale Waste Management Project • Contact Dr. Jerry Tyler, (608) 262-0853</td>
</tr>
<tr>
<td>WI</td>
<td>Wisconsin Precast Concrete Association* • Contact John Meade, (608) 592-3803</td>
</tr>
</tbody>
</table>

If your onsite wastewater training center or program is not listed above, please contact Diana Duran, E-train editor at (800) 624-8301 or (304) 293-4191, fax (304) 293-3161, or e-mail her at dduran@wvu.edu.

*Denotes training center, association, or program not previously listed in E-train.
Onsite reps meet, discuss goals, needs

continued from page 12

NSFC referral,” says George Loomis of the Rhode Island training center. “The first person I had talked to from the private sector said no, so I called NSFC and got two or three more names. One vendor eventually donated one. Later we had a group of Boy Scouts tour the site, and the vendor sold a bunch of composting toilets to the troop.

Other ways to raise funds include fee-based training, fees paid to the state from installation of new systems, in-kind work (or sweat equity), and association membership dues.

Curricula meet diverse needs

The impetus behind the rapid growth in onsite wastewater training centers seems to be a need to standardize a relatively nonconforming industry. And because there are no federal standards for onsite certification, certification-driven training at the state level contributes to the phenomenon.

The training needs are as diverse and far reaching as the audiences the curricula are designed for: pumpers, installers, operators, sanitarians, engineers, other trainers, public health officials, Realtors, contractors, regulators, homeowners, and government officials at all levels. Participants may come to any given training session with a range of skills and knowledge, from none to expert.

Ideally, onsite wastewater training combines classroom instruction and hands-on practice or demonstration, either at the center itself or at another site.

When Kentucky established a training center, the combination was a concern. “Slides in the classroom aren’t enough,” says Harry Nurse, chair of the KOWA Education Committee. “We want to go out in the field, to have a balance of field work and classroom.”

The Northwest Onsite Wastewater Training Center’s set-up is probably ideal. Housed in what is affectionately called “The Chicken Coop” (so named because the building once housed an agricultural college’s poultry barn), the classroom is about 20 yards from the demo site so that an instructor could demonstrate the answer to a question that comes up in class discussion—a very convenient, effective teaching method.

Developing quality curricula presents another challenge—for many reasons, it’s expensive. But several of the centers have done just that or worked in conjunction with universities or colleges to develop curricula. Others have availed themselves of “off-the-shelf” packages, such as those offered by NETCSC, that trainers can tailor to specific needs, or have used training programs from organizations like the National Environmental Training Association. Now, the training centers can get copies of each others’ curricula through NETCSC.

Meeting results in new services

As a result of the meeting, NETCSC will provide training information collection and distribution specific to onsite wastewater training centers and professionals. The information-gathering phase of the process began in December with a request to meeting attendees for the following items:

- a copy of their center’s training materials,
- a list of speakers or trainers with their addresses and phone numbers, and
- a schedule of the center’s current training activities.

Once the materials are received and processed, a copy of the collection will be sent to centers. By mid 1998, NETCSC will develop a training resources guide and update it annually. It will include an abstract of inventoried materials and availability of information on file at NETCSC. A copy of the guide will automatically be sent to the meeting attendees.

“In this rapidly growing discipline of onsite training, an exchange of this nature offers valuable learning opportunities for all the participants, from the very experienced to the newly initiated,” says Mori.

“The November meeting provided an opportunity for all of the onsite training center principals to meet and personally get to know each other, and perhaps reduce the need to ‘reinvent the wheel’ for those of us who are beginning to develop our programs.”

For more information about NETCSC products and services, the training center resource guide, or onsite wastewater training, contact NETCSC at P.O. Box 6064, West Virginia University, Morgantown, WV 26506-6064, phone (800) 624-8301 or (304) 293-4191, or fax (304) 293-3161. You may also access NETCSC’s Web site at http://www.netc.wvu.edu.

Several onsite wastewater training centers have been profiled in past E-trains, including Fall 1997, Summer 1997, Winter 1997, and Summer 1996. For a copy of any of these newsletters, contact NETCSC at the numbers above.
Training costs
Identifying budget components
by Diana G. Duran
E-train Editor

Editor’s Note: This, the first of three articles, discusses cost-based training in general, what costs are involved, how they are determined, and illustrates how they relate to the bottom line. Two more articles on cutting costs and cost recovery will appear in the Summer and Fall issues of E-train, respectively.

Training budgets have historically been lean, and according to a recent American Society for Training and Development (ASTD) survey, those who pay for the training will continue to require justification of its costs and emphasize the need for measurable results. This stress on monetary payback translates into a need for cost effective training and smart budgeting. How can a trainer keep expenses to a minimum and still retain the effectiveness of the training itself?

And if the training is marketed and “sold” to others, how is the registration fee set to cover costs, not to mention cover overhead or ensure a profit?

Like other statements of income and expense, a training budget can quickly become complex. First, the trainer must identify the costs involved. For example, are they fixed, variable, or sunk? What about overhead? How are these costs determined? How much should you spend on marketing and promotional activities? How can the trainer know how much meals, materials, personnel, and other expenses should or will cost? And how do these relate to the bottom line and to any perceived or real value attached to the training? What should be the relation of the total cost of training to the bottom line? Should there be a profit? An “average”?

Answers to these and other questions are best found by first examining each kind of cost and how it relates to overall expense and to profit margin, if one is desired or required.

What are the costs?

Budgets most commonly reflect direct costs—that is, those budget items requiring a direct expenditure of funds. It is easier to identify and track direct costs if cost categories can be established. Direct costs are usually categorized under three main types: fixed, variable, and sunk.

Fixed costs are those whose amount will remain the same regardless of the number of participants. Marketing and promotion, speakers or trainers, travel, room or equipment rental, and personnel costs are examples of fixed costs.

Unlike fixed costs, variable costs depend on any number of items that may change with the number of participants and the associated variables, such as meals, refreshment breaks, materials, and supplies. Obviously, the number of meals ordered or the number of workbooks printed (and their associated costs) depends on the number of participants.

Overhead, overage, or profit can be categorized as a fixed or variable cost. Depending on whether the training program is subsidized or is self supporting, a fixed dollar continued on page 16

Definitions

Fixed costs are program expenses that are not associated with any single attendee and do not increase or decrease regardless of the number of participants in attendance at the program. They usually include such items as printing, postage, and other advertising costs, but may also include items such as honoraria, speaker travel, space rental, and administrative overhead.

Sunk costs are “pre-spent” moneys. This expenditure must be committed to and spent early in the program planning process and can not be recovered unless the program is held, and revenue is generated to begin to cover this category of expense.

Variable costs are the expenses associated with any one attendee. Variable expenses include meals for attendees, name tags, certificates, and other like expenses, and are expressed as a cost per person. The sum of the variable expenses varies dependent upon the number of attendees.

Break-even is the point, expressed as a number of attendees, at which sufficient revenue is generated to pay all program expenses.

Go/No-Go is the point, expressed as number of attendees, at which it is more economical to hold a program that is going to lose money than to cancel the program.

Source: “Basic Program Budgeting for the Profit Driven Environment,” Samuel Brackstone, executive director, and John McCracken, director of program development and marketing, Fogelman Executive Center, Memphis State University.
Training costs
Identifying budget components

amount may be required by the department or organization; on the other hand, a percent of the gross revenue—a variable cost—may be returned.

Sunk costs are spent and irretrievable whether the training occurs or not. Some (but not all) fixed costs, like marketing and promotion, are also sunk costs—in other words, a write off. Some fixed costs, such as speakers and travel, are not sunk if the training is canceled.

For example, if 10,000 brochures are designed, printed, and mailed, but there are no registrations forthcoming, the expense is sunk, and there is no recovery of the dollars spent and no benefit except perhaps a valuable lesson learned (if you can determine why the return was zero). Personnel time spent in development is another example of a sunk cost.

How are costs determined?

If the costs you need to calculate are for in-house training, and there is no registration fee (revenue) and no profit margin or overhead to accomplish, then delineating the direct costs and totaling them will give your direct costs.

In his workshop, “Taking Pride in Service—Satisfying Our Customers in the 90s,” Ralph Elliott, Ph.D., director of professional development at Clemson University, presents an easy-to-follow formula for calculating cost-based pricing and the break-even point:

1. Determine fixed costs (FC) such as marketing/promotion, facilities, honoraria, audiovisual rental, etc.
2. Determine per person variable costs (VC) such as materials, meals, and breaks.
3. Determine expected attendance (A) and multiply that number times the total VC per person.
4. Add the resulting number to the total FC to get your total cost (and also a minimum price you must charge to recover these costs if applicable).
5. If there is a profit margin (PM), you will need an additional calculation—multiplying the expected attendance by 1 minus the profit margin, expressed as a percent of 1, for example, .20.

The formula looks like this:

\[ \text{Price} = \text{FC} + (A \times \text{VC}) \times (1 - \text{PM}) \]

To illustrate, suppose that fixed costs total $5,000; the variable cost per participant is $25, and you expect 30 people to attend the training. If your organization wants a profit margin of 20 percent, the numbers will look like the illustration below, with the cost-based price of the training at $240:

\[ \text{Price} = 5000 + (25 \times 30) = 240 \]

If your training is profit-driven, you may also want to know at what point canceling the program will cost more than holding it. Samuel Brackstone and John McCracken of the Fogelman Executive Center at Memphis State University offer this formula for calculating the Go/No-Go point:

\[ \text{Go/No-Go} = \frac{\text{Total Fixed Cost} - \text{Sunk Costs}}{\text{Fee} - \text{Variable Cost per Person}} \]

How do costs relate to the bottom line?

In a very real sense, costs are the bottom line. And calculating the direct costs precedes any other deduction or decision related to

continued on next page
Eight Steps to Effective Program Budgeting

1. Identify all program activities and assign a cost or value to each of these activities.
2. Classify all costs as either fixed or variable.
3. Identify all sunk costs.
4. Estimate the number of attendees.
5. Calculate the estimated cost per attendee.
6. Set the registration fee.
7. Calculate the break-even attendance.
8. Calculate the Go/No-Go point.

Source: “Basic Program Budgeting for the Profit Driven Environment,” Samuel Brackstone, executive director, and John McCracken, director of program development and marketing, Fogelman Executive Center, Memphis State University.

There is certainly more than one way to identify, organize, and calculate the direct costs of any given training session or program. The information here, however, should be useful as a guide to help with these activities.

One thing we all know—training can be expensive. As any training expenditure is being considered, trainers should keep the words of Walter Dick and Lou Carey, authors of *The Systematic Design of Instruction*, uppermost in their minds: that instruction is a solution chosen when other solutions do not satisfactorily solve the problem.

Once training has been defined as the solution, costs are identified, calculated, and obligated. Then it is the trainer’s job to analyze all the factors involved and make the determination whether training is needed and to use that information to guide further decisions.

If you have ways in which you have trimmed your training budget without compromising effectiveness, consider sharing these techniques with E-train readers by contacting the editor at (800) 624-8301 or (304) 293-4191, fax to (304) 293-3161, or e-mail her at dduran@wvu.edu.

For more information about budgets or other training tips and techniques, contact NETCSC at P.O. Box 6064, West Virginia University, Morgantown, WV 26506-6064, call the numbers above, or access their Web site at http://www.netc.wvu.edu.
Solid waste, training via the Internet

by Jamie Knotts
NETCSC Promotions Editor

This issue ends our first year of reviewing Internet sites for trainers. In that time, we’ve examined a number of sites focusing on general training resources, copyright issues, and current training and development research. We’ve also reviewed sites for wastewater and drinking water correspondence courses, presentations, icebreakers, and evaluations.

This quarter, we explore a solid waste training site and one that covers the ins and outs of delivering training via the Internet.

Log on to the site named Landfill Operator Training/Certification, and you’ve entered an area overflowing with information about solid waste training and municipal and residual waste. Point your browser to: http://www.dep.state.pa.us/dep/DEPUTATE/AIRWASTE/WM/MRW/Facts/OPCERT.htm.

The page is maintained by the Pennsylvania Department of Environmental Protection, Bureau of Land Recycling and Waste Management. Pennsylvania does not require training and certification for waste facility operators, but it does recognize the importance of such programs and encourages operators to seek training opportunities.

Several links are listed to other organizations and academic institutions offering training and certification programs and continuing education courses. Among those listed are the Solid Waste Management Association of America (SWANA), American Society of Mechanical Engineers (ASME), The University of Wisconsin Department of Engineering Professional Development Program, and Pennsylvania’s own universities.

After you’ve read through that information, click on a link at the bottom of the page and go to the Municipal and Residual Waste Homepage. It’s maintained by the same state agency and likely contains everything you ever wanted to know about municipal and residual waste, waste tires, sewage sludge, and permit guides in Pennsylvania. Looking for information about tipping fees, landfills and incinerators, approved designs, current policies and regulations, annual reports, or other items? It can be found here.

Our next site focuses on a hot topic in training circles—training and development via the Internet. Have you been wondering what all the hoopla is about or whether you should start dabbling in alternative training delivery methods? This is the site that will give you the answers—a definite must-read for those new to the subject.

An apparent outgrowth of a training and development discussion listserv available through Penn State University, the site delves into training by way of e-mail conferencing, BBSes, and Web sites. Numerous articles can be read including such topics as:

- Why Consider E-Mail Conferencing for Training When You Can Use CD-Interactive?
- Examples of Management Training Materials To Adapt
- Software Needed for Training via Internet E-Mail Conferencing
- BBS Software and Electronic Universities for Training and Education
- Ways Trainers and Educators Use BBSes

To get a real feel for how others are using the Internet and similar electronic means to deliver training, be sure to read the case study section. These trainers’ collective insight is invaluable.

The information-rich Distance Education section examines the academic and theoretical base underlying instruction via the Internet.

If you’re looking to learn all you can about electronic distance education, you’ll definitely want to bookmark the site and come back when you’ve got the time to hunker down and read it all. Log on to the site at http://cac.psu.edu/~cxl18/trdev/.

Web addresses were current at the time of publication. Send your suggestions for site reviews to Jamie Knotts at jknotts@wvu.edu or contact him at (800) 624-8301 or (304) 293-4191.

At a glance...

Landfill Operator Training/Certification:
http://www.dep.state.pa.us/dep/DEPUTATE/AIRWASTE/WM/MRW/Facts/OPCERT.htm

TRDEV Discussion Group:
http://cac.psu.edu/~cxl18/trdev/
Solid Waste
Full Cost Accounting for Municipal Solid Waste Management: A Handbook
Sponsored by the U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response.

Content: Full cost accounting (FCA) is a systematic approach for identifying, summing, and reporting the actual costs of solid waste management. This handbook discusses identification of municipal solid waste (MSW) management costs, how to explain MSW costs to citizens, and how to adapt a businesslike approach to MSW management. Introducing FCA, the scope of FCA for MSW, compiling FCA data, allocating costs, and reporting FCA data are the chapters' subject matter. An appendix illustrates using FCA for MSW management. A glossary, references, case studies, and worksheets are also included.

Use: This handbook helps solid waste managers and local officials to implement FCA in their communities. It assists officials in understanding the cost of MSW services. It introduces key terms and concepts and prepares readers for various issues arising from conducting FCA. This book can be used for MSW management training or as a resource for local solid waste officials.

TRBKFN05/Book, 1997..........................$10.10
(Plus shipping and handling)

Contact: NETCSC, West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064, (800) 624-8301, fax (304) 293-3161, or U.S. EPA Office of Solid Waste and Emergency Response (5305W), http://www.epa.gov, RCRA Hotline (800) 424-9346. Product number: EPA 530-R-95-041.

Wastewater
Pollution Prevention for Vermont’s Dairy Manufacturing Facilities
Sponsored and developed by the Vermont Department of Environmental Conservation.

Content: This video defines pollution prevention and provides reasons why workers should comply with pollution prevention programs. Examples of how employees can reduce or minimize wastes are illustrated.

Use: The importance of preventing pollution at a dairy manufacturing plant is the focus of this video. Trainers can use it as part of pollution prevention training for plant employees.

TRVTOM06/Video, 7.5 minutes, 1997..........................$5.30
(Plus shipping and handling)

Contact: NETCSC, West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064, (800) 624-8301, fax (304) 293-3161.

Report lists wastewater funding sources
A new publication describes 10 federal programs that offer financial and technical assistance to help small communities plan, design, and build water and wastewater systems. The 28-page report, Federal Funding Sources for Small Communities Wastewater Systems, can help state, tribal, and local officials identify possible funding sources.

Each entry includes a description of the federal funding agency, the type of assistance provided, the type of projects that are funded, eligibility requirements, application procedures, and contact information, including toll-free numbers and Web sites, where appropriate.

Compiled by the U.S. Environmental Protection Agency (EPA), the document is available by calling the National Small Flows Clearinghouse (NSFC) at (800) 624-8301 or (304) 293-4191, or by fax at (304) 293-3161. Request Item #FMBLFN29. The report is free; however, shipping and handling charges will apply. The document may also be downloaded from the NSFC’s Web site http://www.nsfc.wvu.edu, or from EPA's National Environmental Publication Information Site at http://www.epa.gov/cincl/.
Onsite wastewater training: Moving to the forefront

Cutting training costs: Trim the budget, keep the quality

Using a modular format to create new delivery strategies

The road to knowledge begins with the turn of the page.

Fortune cookie, Peking Restaurant
Morgantown, WV