A NEW FEATURE DURING INSTITUTE 2004 !

The "Small Community Needs and Solutions Forum" will feature concurrent technology-specific sessions, classroom presentations and demonstrations on topics requested by past Institute participants. Exhibitors will be available to assist with problem solving and answer individual questions.

°∞Small Community Needs and Solutions Forum°±
Wednesday, July 28, 2004
2:15 °© 5 p.m.

Advanced Asset Management

Carl E. Brown, Government Assistance Unit Chief
Environmental Assistance Office, Missouri Department of Natural Resources

Abstract: All indications are that the Missouri Department of Natural Resources is the first state environmental agency to start training communities and consultants on how to do advanced asset management (AAM). AAM can be summarized as getting the most bang for the infrastructure buck over the long term. While the concept is basic, achieving it requires excellent thinking, planning, and execution. AAM can be boiled down to five basic questions:
1. ÄWhat do I own and what condition is it in?
2. ÄWhat is my required level of service?
3. ÄWhat are my risks of failure and how should I deal with them?
4. ÄWhat are my capital and operating cost alternatives?
5. ÄWhat are the required annual annuity and rates needed to execute my chosen alternative?
Target Audience: Community officials, utility managers, technical assistance providers
Presenter: Carl Brown provides technical assistance in his role as Government Assistance Unit Chief with Missouri°Øs Department of Natural Resources Environmental Assistance Office. He is the primary developer of the °∞do it yourself°± rate setting software programs°™ °∞*Show-me Ratemaker*°±™ which are used for analyzing sewer and water user charge systems. This is the first and only public domain software of its kind in the nation.

Aerobic Treatment Units for Residential and Small Community Wastewater Management

John Buchanan, Assistant Professor
Department of Biosystems Engineering and Environmental Science, University of Tennessee and Director, Tennessee Onsite Training Center

Abstract: Increasingly, homes and small commercial establishments are being constructed in rural areas with no central sewer and where onsite systems have marginal soils. In these situations, wastewater must receive a high-level of pretreatment before being discharged into the soil. Aerobic treatment units and other processes can be used to produce a high-quality effluent. Because most of the organic compounds in the effluent have been removed (pretreatment), the soil system (final treatment) does not have to provide the degree of renovation that is required for

the traditional septic tank (anaerobic treatment) and leachfield combination. Depending on local regulations, the use of an aerobic treatment unit may allow for reductions in the required infiltration area and/or reduction in depth to a limiting layer. This ability to produce a high-quality effluent may open sites for development that were previously unsuitable because of soil limitations. The primary focus of this module is the aerobic treatment of wastewater using suspended-growth biological treatment units. This presentation will provide a review of the biochemical oxidation of soluble and colloidal organic compounds using aerobic microbial digestion, provide descriptions of various engineered systems that maintain high-rate digestion, and provide an understanding of the operation and maintenance required to keep these systems functional.

Target Audience: Small community policy makers and those interested in aerobic treatment technologies

Presenter: John Buchanan is Assistant Professor in the Department of Biosystems Engineering and Environmental Science at the University of Tennessee where he conducts research and teaches undergraduate and graduate courses in decentralized wastewater management. He also serves as Director of the Tennessee Onsite Training Center, which provides education and training to community leaders so they can better understand the implications of making decisions regarding their wastewater infrastructure.

Engineer Training Guides for Small Public Water Systems: Slow Sand Filtration, Iron and Manganese Control, Arsenic Removal, Limestone Contactors and UV Disinfection

Melissa Smith, Project Director
New England Water Treatment Technology Assistance Center
University of New Hampshire

Abstract: The New England Water Treatment Technology Assistance Center (NE-WTTAC), located at the University of New Hampshire, working in conjunction with the University of Tennessee°™Knoxville researchers, has developed an educational Web site and CD-ROM focusing on treatment technologies for small public water systems. These training materials are designed to encourage the use and approval of new, innovative, and state-of-the-art water treatment technologies by design and regulatory engineers who typically deal with small public water systems. The CD focuses on slow sand filtration, iron and manganese control, and arsenic removal, while the Web site covers limestone contractors and UV disinfection. Both the CD and Web site contain self-executing software with multi-media features such as photos and video of existing facilities and vendor schematics. The educational elements for each technology presented include typical process description and flow diagrams; treatment theory; design features; design criteria and example calculations; operational considerations; field studies and typical treatment technology performance, necessary operational skill levels, potential for automation; advantages, limitations and concerns; piloting requirements; estimated costs; and location of full-scale facilities.

Target Audience: Design and regulatory engineers who deal with public water systems, plant operators and technical assistance providers who work with small public water systems.

Presenter: Melissa Smith is Project Director for the New England Water Treatment Technology Assistance Center (NE-WTTAC) where she oversees and coordinates research projects funded and conducted through the center. Located at the University of New Hampshire, the NE-WTTAC is one of eight technology assistance centers (TAC) funded by the U.S. EPA. These TAC s address the needs of small public water systems by applying university resources to technology verification; piloting and field testing innovative technologies; and providing training and technical assistance.

SE-TAC: Developing Tools and Training to Enhance Capacity of Small Public Water Systems

Kim Steil, Coordinator
Southeastern Regional Small Public Water Systems Technical Assistance Center
Mississippi State University Geo Resources Institute

Abstract: The Southeastern Regional Small Public Water Systems Technical Assistance Center (SE-TAC), administered by the Geo Resources Institute at Mississippi State University, is one of eight technical assistance centers funded by the U.S. EPA to help develop the managerial, financial, and technical capacity of small drinking water systems. The SE-TAC strives to build partnerships and collaborative relationships between universities, the EPA, state primacy agencies, and technical assistance organizations in the southeastern states by granting seed money for training, technical assistance, and pilot projects that will improve the ability of small systems to meet SDWA requirements. This presentation will introduce participants to the SE-TAC program, make them aware of SE-TAC funding opportunities, and provide information about the tools and training materials available through SE-TAC and how to access them.
Target Audience: Technical assistance providers, operators, system managers, regulators, public health staff, local officials, engineers
Presenter: Kim Steil is Coordinator of the Southeastern Regional Small Public Water Systems Technical Assistance Center (SE-TAC) where she works closely with the SE-TAC advisory board to coordinate a regional competitive grants program designed to address small public water system priority issues. The program applies university training, research, and outreach resources to issues and problems throughout 11 southeastern states.

Using Geographic Information Systems (GIS) by Small Communities for Water, Wastewater Utilities and Environmental Resources

Chris Niesterowicz, Geographic Information System Specialist
Maryland Environmental Service

Abstract: This presentation will provide background information on desktop and mobile geographic information systems (GIS). It will show how municipalities are using GIS and its mapping capabilities both in the field and office to better manage, maintain, and document their water and wastewater utility systems and other environmental resources, such as trees, recreational areas, wetlands, streams, and soils. This presentation will give town leaders a better understanding of whether GIS can be a useful tool in managing their water, wastewater, and environmental resources. It will stress how communities can use GIS to improve water quality and manage growth.
Target Audience: Town managers, utility managers, environmental managers, and others interested in using GIS technology as an environmental management tool.
Presenter: Chris Niesterowicz is a Geographic Information System Specialist with Maryland Environmental Service where he implements and manages GIS projects for federal, state, and local clients in water supply, stormwater management, wastewater treatment, asset management, groundwater mitigation, and environmental compliance applications.

Optimization Tools for Small Surface Water Treatment Plants

Joy Barrett, Ph.D., Director, Training and Technical Services
Rural Community Assistance Program, Inc.

Abstract: This presentation will provide an overview of the concept of optimization of surface water treatment plants as a means of improving water quality without capital expenditures. Tools

will be presented for ranking the priorities of plants in terms of the risk they present to public health and for tracking their performance. The Comprehensive Performance Evaluation (CPE) will be described in detail. Session participants will have the opportunity to work in groups on priority ranking and CPE exercises. Partnerships between plant and municipal staff and technical assistance providers will be discussed, as well as ways that technical assistance providers can assist state personnel with optimization initiatives. This presentation will help small communities by providing or strengthening participants°Ø understanding of optimization, and providing tools that they can share with both small systems and state personnel to assist plants with improving the quality of the water they produce without incurring construction expenses.
Target Audience: Treatment plant staff, community officials, primacy agency personnel, technical assistance providers
Presenter: Joy Barrett, Ph.D., is Director of Training and Technical Services for the Rural Community Assistance Program (RCAP), Inc. where she manages all security-related projects, provides engineering/technical guidance on water and wastewater issues, and coordinates RCAP°Øs Training Work Group network. She also serves as Supervisor of the Colorado Drinking Water Operators°Ø School.

Wastewater Options for Small Communities: Grinder and STEP Systems

Matt Byers, Onsite Research and Development Manager
Zoeller Company

***Abstract*:** Communities require basic wastewater collection and treatment information before deciding on a course of action. This information must include the complete spectrum of options and hurdles. The current presentation will address the use of pressure sewer collection systems as well as treatment options. The appropriate use of grinder pumps, septic tank effluent pumping systems (STEP), and septic tank effluent gravity systems (STEG) will be discussed. Advantages and disadvantages will be taught. Emphasis will be placed on appropriate technology. The use of decentralized systems in a regional management structure will be included. The target audience will be government officials and citizens involved in making critical decisions for their communities. Engineers unfamiliar with decentralized options would also benefit. The presentation will be in a lecture format and will require a Power Point set. Classroom set-up will work for this discussion. Adequate time will be allowed for questions and answers during the presentation.
Presenter*:* Dr. Byers is operating the onsite research and development program for the Zoeller Company. This program is developing desirable onsite wastewater components, systems and procedures for residences and small communities. He has also served the Kentucky Onsite Wastewater Association in various positions. He is also assistant professor at the University of Kentucky, Department of Biosystems and Agricultural Engineering

Why Should I Care About Onsite Wastewater Research? Developments in Watershed Impacts and Treatment System Performance

William Hogrewe, Rural Development Specialist°™Environmental
Rural Community Assistance Corporation

Abstract: This presentation will review the current literature investigating onsite wastewater treatment, disposal, and reuse systems. Topics covered include the impacts on water quality and public health as well as performance of conventional and innovative treatment technologies. The relevance of research results will be stressed for communities, regulators, designers, installers, managers, and operators. Examples will be discussed of how knowledge gained from research can be used by communities to make better decisions concerning the choice of wastewater

technologies and the operation of those facilities. Information resources will be documented and handouts will be provided.
Target Audience: Community decision-makers, regulators, designers, installers, onsite management entity managers, and operators
Presenter: William Hogrewe is a Rural Development Specialist°™Environmental for the Rural Community Assistance Corporation (RCAC) where he provides assistance to small, rural, and low-income communities in Colorado in the areas of water, wastewater, and solid waste. An environmental engineer with more than 25 years of experience assisting small and large communities with environmental issues, his experience includes planning, funding, design, construction, and operation of facilities and programs. He is also Co-supervisor of the University of Colorado°Øs Operator Training School. Hogrewe holds a Ph.D. in environmental engineering from the University of Colorado and is a registered engineer in Colorado and Utah.

Reducing Storm Water Infrastructure Costs for Small Developments

Wayne Wilkerson, Assistant Professor, Department of Landscape Architecture
Mississippi State University

Abstract: Infrastructure costs are a major concern for small communities. Research has shown that substantial savings can be realized by implementing best management practices (BMP) for stormwater systems. This presentation summarizes the findings of a project completed in April 2004 that assessed the impact that overland transport systems had on the net reduction of wastewater treated for a new subdivision containing approximately 330 new homes. BMP stormwater and grey water treatments filtration systems were reviewed. Reductions in infrastructure costs were also reviewed. This presentation will provide basic information for managers and planners as they revise or implement new development guidelines for their communities.
Target Audience: Planners and engineers
Presenter: Wayne Wilkerson is Assistant Professor in the Department of Landscape Architecture at Mississippi State University where he teaches undergraduate construction and drainage courses and graduate level environmental master planning for small communities. He is especially interested in sustainable design practices as they apply to stormwater management issues.

RCAP°Øs E-Bulletin: A Resource for Small System Decision Makers

Joy Barrett, Ph.D., Director, Training and Technical Services,
Rural Community Assistance Program, Inc.

Abstract: This presentation will describe the RCAP network°Øs new electronic news bulletin for small and very small water and wastewater systems. An explanation will be given on how subscribers can request technical assistance through the bulletin, and how those requests are directed to appropriate technical assistance providers in their regions. Themes for upcoming issues will be discussed, and subscription information will be provided. Session participants will have an opportunity to ask questions about the bulletin, and will be surveyed for priority topics that they°Ød like to see covered. The information provided is intended to extend RCAP°Øs technical assistance to communities that cannot be reached in person.
Target audience: Treatment plant staff, community officials, primacy agency personnel, and technical assistance providers
Presenter: Joy Barrett, Ph.D., is Director of Training and Technical Services for the Rural Community Assistance Program (RCAP), Inc. where she manages all security-related projects, provides engineering/technical guidance on water and wastewater issues, and coordinates

RCAP°Øs Training Work Group network. She also serves as Supervisor of the Colorado Drinking Water Operators°Ø School.

Assistance Provider as Consultant

Carl E. Brown, Government Assistance Unit Chief
Environmental Assistance Office, Missouri Department of Natural Resources

Abstract: Carl Brown heads an office that provides environmental technical assistance to local governments and has also consulted privately. He contends that government, agency, and nonprofit organization-sponsored technical assistance providers are consultants, just as private practitioners are consultants. Although they are paid differently, they do their work essentially the same as private consultants. Both types of technical assistance providers must be financially sound and efficient; provide a valuable, worth-the-cost service to the client; fill one or more "niches" well; and attend to the client's needs above their own, even when that means referring the client elsewhere for service. Likewise, clients need to view assistance providers as consultants. They should choose the provider who can best satisfy their needs, seek a strong return on investment in consultant services, and always maintain ownership of and decision-making power for their project, using the assistance provider as a resource to aid them in project execution.

Target Audience: Community officials, technical assistance providers

Presenter: Carl Brown provides technical assistance in his role as Government Assistance Unit Chief with Missouri°Øs Department of Natural Resources Environmental Assistance Office. He is the primary developer of the °∞do it yourself°± ratesetting software programs°™ °∞*Show-me Ratemaker*°±™ which are used for analyzing sewer and water user charge systems. This is the first and only public domain software of its kind in the nation.

Technical Assistance Challenges of Today: Roundtable Discussion Group

Karen D. McBride, Rural Development Specialist/Program Lead
Rural Community Assistance Corporation

Abstract: Plan to attend this interactive roundtable discussion group that will address the following questions:

- What types of assistance do small communities request?
- What kind of training is needed to serve the changing needs of small communities?
- What are the challenges small communities face?

This session will provide an opportunity for Institute attendees to share technical assistance experiences in an informal forum guided by an experienced facilitator.

Target Audience: Technical assistance providers, community officials, utility operators and managers

Presenter: Karen McBride is a Rural Development Specialist with the Rural Community Assistance Corporation in West Sacramento, California. Currently, she is also a part-time Visiting Training Specialist working on special projects for the National Environmental Training Center for Small Communities. She was the originator of the third onsite wastewater management program in California, The Sea Ranch, where she served as Operations Manager for 7.5 years. McBride is a state certified wastewater treatment plant operator and worked for several years as a plant operator for one of the largest wastewater treatment plants west of the Mississippi. She has also worked with numerous agencies in decentralized wastewater management. McBride is a member of the U.S. EPA°Øs Speaker Bureau for the Decentralized Voluntary Wastewater Management Guidelines outreach program.

DEMONSTRATIONS

Grinder and STEP Systems to Meet Community Wastewater Needs

Presenter: Matt E. Byers, Onsite Manager
Zoeller Company, Louisville, KY

Abstract: Small communities face a plurality of wastewater challenges.Ä This information will aid a local engineer to make cost effective technology decisions.Ä Understanding the available technology, its applications, dependability and costs are vital pieces of information when making wastewater decisions. Small residential grinders as well as septic tank effluent pumping systems (STEP) allow designers to create watertight pressurized collection systems.Ä This presenter will provide descriptions of said equipment as well as applications.Ä This troubleshooting expert will compare and contrast both pumping systems.

Constant Pressure Booster System

Presenter: *Dave Crabtree, President*
Service Pump and Supply Inc, Huntington, WV

Abstract: Details of a water booster system that does not require a large storage tank will be described in this demonstration. Participants will find this technology to be very user friendly.

Technology Based Training Solutions

Presenter: *Lee Kraus, Vice President, Learning Technologies*
Information Research Corporation, Fairmont, WV

Abstract: The technology being demonstrated is an e-learning content management system. With an Internet connection, this learning content management system gives the user the ability to access training information and training resources at anytime. Included in the discussion will be an overview of technology based training services offered by IRC.

Infiltrator Plastic Leaching Chamber for Residential and Commercial Septic Systems

Presenter: *Lynn Brashear, Senior, Territory Sales Manager*
Infiltrator Systems, Inc., Old Saybrook, CT

Abstract: Participants may examine the workings of plastic leachfield drainage chambers for onsite wastewater solutions. The presentation will address infiltrator chambers as a direct replacement for stone and pipe septic leachfields.

Gas Detection and Calibration

Presenter: *Rick Krah, District Manager*
Industrial Scientific Corporation, Oakdale, PA

Abstract: Gas detection and proper calibration will be demonstrated. Participants will have an opportunity to ask questions and seek solutions for the situation in their community.

°∞*TECH TALKS*°±

This is an educational forum presented by industry experts. Each presenter will provide an overview of a variety of technologies applicable to small communities. Each representative will be available at their organization°Øs exhibit booth following their presentation. Institute

participants may meet with them to discuss unique situations and potential technologies to solve the problem or meet future needs.

Sludge Reduction and BNR Treatment

Presenter: *James G. Canterbury, Manufacturing Representative*
Biss Nuss, Inc., Charleston, WV

Abstract: Specialists in process systems for water and wastewater treatment will identify ways to reduce sludge by utilizing the cannibalization process and by using Bio D+.Ä The reduction of biological nutrients, such as nitrogen and phosphorous by utilizing the SBR and BioD+ process will also be discussed.Ä Participants will learn about achieving BNR by use of BioD+. The technologies addressed in this session will help reduce sludge handling and disposal; reduce phosphorous; reduce nitrogen; reduce Algae and reduce grease.

Small Community Decentralized Wastewater Systems Using the SCAT Biofilter System

Presenter: *Thomas C. Petty, Environmental Specialist*
Zabel Environmental Technology, Crestwood, KY

Abstract: Modular open cell foam is an advanced treatment system. The presenter will provide an overview of the potential uses. Participants will learn about the use of this technology as another weapon in the arsenal to help find solutions for wastewater needs.

Gas Detection and Calibration

Presenter: *Rick Krah, District Manager*
Industrial Scientific, Oakdale, PA

Abstract: Providing safe working environments is essential to operations in small community treatment systems. Technologies available for gas detection will be addressed in this presentation. Available equipment to achieve proper calibration will be examined.

Constant Pressure Booster System

Dave Crabtree, Marketing Manager
Service Pump, Huntington, WV

Abstract: Operators, system managers and assistance providers interested in saving money will find this session helpful. Water booster systems that don't require large storage tanks may be an option. The presenter will explain the user-friendly aspects of the technologies.

Please check our Web site at
http://www.nesc.wvu.edu/netcsc/Institute04/Sched_Regstrtn.html
for additional details.

The Environmental Training Institute for Small Communities 2004
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