



# TECHNOLOGY TRANSFER

from  
**Office of Research and Development**  
**Office of Technology Transfer & Regulatory Support**

## New Technology Transfer Publications

[use form in back to order]

### Brochure

#### ***Regional Environmental Monitoring and Assessment Program (R-EMAP) (625/R-93/012)***

The Regional Environmental Monitoring and Assessment Program (R-EMAP) is a component of EPA's Environmental Monitoring and Assessment Program (EMAP), an interagency program that documents the status and trends in the condition of the nation's ecological resources. R-EMAP is a partnership of EMAP, EPA regional offices, other federal agencies, and the states to assess ecological issues on the state and local level. R-EMAP is coordinated through EPA regional offices, other federal agencies and states. The objectives of R-EMAP are to

- Evaluate and improve EMAP concepts for state and local use;
- Assess the applicability of EMAP indicators at differing scales; and
- Demonstrate the utility of EMAP for resolving issues of importance to EPA regions and states.

This document presents an overview of EMAP and R-EMAP along with detailed descriptions of R-EMAP projects being planned and implemented by each EPA region. Seven EPA regions began implementation of R-EMAP projects during 1993 and the remaining three EPA regions will begin R-EMAP project implementation in 1994. The seven R-EMAP projects underway and described in this document are

- Region 1  
Fish Tissue Contamination in the State of Maine
- Region 2  
Sediment Quality of the NY-NJ Harbor and the Regional Validation of Indicators of Sediment
- Region 3  
Surface Water Quality Indicators

- Region 6  
Toxics Characterization of Selected Texas Estuaries
- Region 7  
Estimating the Status of the Health of Fisheries in EPA Region 7
- Region 9  
Assessment of Aquatic and Riparian Ecosystems in a Highly Modified, Agriculturally-Influenced Environment (California's Central Valley)
- Region 10  
Biological Assessment of Wadable Streams in the Coast Range Ecoregion and the Yakima River Basin

This document also describes plans for the implementation of R-EMAP projects during 1994 in EPA Regions 4, 5, and 7.

### Handbooks

#### ***Control Techniques for Fugitive VOC Emissions from Chemical Process Facilities (625/R-93/005)***

This handbook contains information concerning volatile organic compound (VOC) emissions from the synthetic organic chemicals manufacturing industry (SOCMI), petroleum refineries, on-shore natural gas processing plants, polymer manufacturing plants, benzene from particular equipment, and vinyl chloride from manufacturing plants that process one or more polymers containing any fraction of polymerized vinyl chloride. Explanation of the regulations that apply to small- to medium-sized industries are contained in the handbook. The more stringent requirements of the hazardous organic national emission standard (HON) are not discussed extensively in this handbook. However, the procedures discussed for control of VOC emissions are applicable to any size facility. The application of control practices will have to be more stringent.

The handbook provides guidance on control strategies to comply with regulations that apply to chemical process facilities. Three main types of standards

3 DAYS ONLY

are applied to fugitive emissions from chemical process facilities: performance standards, equipment practices, and work practices. Each of these has its place and may need to be applied in parallel to achieve the necessary reductions of fugitive emissions. This handbook outlines the requirements and procedures to apply the strategies.

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### **Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Waste (625/R-93/013)**

Military operations have resulted in the contamination of soil and ground water at many federal facility sites. Several of these sites are undergoing corrective action to reduce risk. This handbook covers safety concerns, sampling methods, and treatment and management options for explosive and radioactive waste that may be found on these sites and will be of use to all parties involved in the remediation.

Treatment methods covered in this handbook include incineration, biodegradation (including composting), open burn/open detonation, recycling of propellants, ultraviolet oxidation, activated carbon, precipitation, ion exchange, polymer encapsulation, vitrification, and grouting. Management methods for unexploded ordnances, compressed gas cylinders, and reactive chemicals are also presented.

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### **Ground Water and Wellhead Protection (625/R-94/001)**

This document is for those responsible for delineating the boundaries of a wellhead protection area, identifying and evaluating potential contaminants, and identifying wellhead management options. It is divided into two parts: (I) Wellhead Protection Area (WHPA) Delineation and (II) Implementation of Wellhead Protection Areas.

*Part I:* Chapter 1 provides a general introduction to fundamentals of contaminant hydrogeology, followed by Chapter 2 (Potentiometric Maps) and 3 (Measurements and Estimation of Aquifer Parameters for Flow Equations), which cover essential hydrogeologic concepts for WHPA delineation. The last three chapters in Part I cover specific WHPA delineation methods: simple geometric and analytical

methods, hydrogeologic mapping and computer modeling.

*Part II:* Chapter 7 provides an overview of the major steps in developing a wellhead protection program. Chapters 8 (Contaminant Identification and Risk Assessment) and 9 (Wellhead Protection Area Management) contain numerous tables, checklists, and worksheets for the steps that follow delineation of wellhead protection areas. Chapter 10 includes six case studies that illustrate delineation methods and implementation approaches for a variety of hydrogeologic settings.

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### **Seminar Publication**

#### **Operational Parameters for Hazardous Waste Combustion Devices (625/R-93/008)**

This publication contains information presented in 1992 at a series of seminars. In addition, a copy of the Draft Combustion Strategy issued by Administrator Carol Browner in May 1993 is included as an appendix. Operational parameters affecting efficient operation of the devices designed and/or used to treat hazardous wastes are discussed in this publication. Regulatory authority that serves as the basis for requiring certain parameters is referenced.

Three types of hazardous waste combustion devices are regulated under the Resource Conservation and Recovery Act (RCRA): incinerators, boilers, and industrial furnaces. Standards applying to incinerators are different from those that apply to boilers and industrial furnaces. Incinerator regulations were initially promulgated in January 1981, with many subsequent amendments. They are codified in the Title 40, Code of Federal Regulations, Parts 264 and 265, Subpart O (40 CFR 264, 265). Boiler and industrial furnace regulations were promulgated on February 21, 1992, with subsequent technical amendments. They are codified in 40 CFR 260, *et seq.*

Enclosed devices with direct flame are considered incinerators; thermal treatment devices that are not enclosed, do not have a direct flame, and are not a boiler or industrial furnace are considered miscellaneous units. To be classified as an industrial furnace a device must be listed in the regulation and produce a marketable product; only twelve types of devices have been classified as industrial furnaces eligible to treat hazardous wastes. Definitions for all three types of hazardous waste treatment devices are listed in Section 260.10 of 40 CFR 260.

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### **Guides to Cleaner Technologies**

#### **Organic Coating Removal (625/R-93/015)**

Cleaner coating removal technologies are developing rapidly to meet a variety of industrial needs to replace solvent strippers having toxic properties. This guide describes cleaner technologies that can be used to reduce waste in coating removal operations. The removal technologies discussed employ one or more general types of physical removal mechanisms:

- Abrasive technologies that wear coating off with scouring action.
- Impact technologies that rely on particle impact to crack the coating to remove it.
- Cryogenic technologies that use extreme cold to make the coating more friable and induce differential contraction to debond the coating.
- Thermal technologies that use heat input to oxidize, pyrolyze, and/or vaporize the coating.

Information is presented on commercially available as well as emerging technologies. Issues discussed for each of the technologies include how pollution can be reduced, applications to various operations, and potential cost benefits that may be realized. Commercially available technologies discussed include Plastic Media Blasting, Wheat Starch Blasting, Burnoff Coating Removal, Molten Salt Coating Removal, Sodium Bicarbonate Wet Blasting, Carbon Dioxide Pellet Cryogenic Blasting, High-Pressure Water Blasting, and Liquid Nitrogen Cryogenic Blasting. Emerging technologies discussed include Laser Heating, Flashlamp Heating, and Ice Crystal Blasting.

Issues concerning various regulations governing solvent-based methods are discussed and summarized under the Pollution Prevention Strategy Section, which identifies the main federal environmental regulations that may influence the selection of a cleaner coating removal technology. Also, a section on Cleaner Technology Transfer considerations discusses various criteria for selecting the appropriate cleaning technology for the type of substrate under consideration.

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#### **Alternatives To Chlorinated Solvents For Cleaning and Degreasing (625/R-93/016)**

This guide describes chemical alternatives to chlorinated solvents that eliminate

the use of ozone-depleting chlorinated solvents and smog-forming solvents that contribute high levels of VOCs to the atmosphere. Both commercially available and emerging chemical alternatives are discussed. Sufficient information is presented to select one or more technologies for further analysis and in-plant testing for process and system design engineers. Industries that have traditionally used chlorinated solvents include metal finishing; airframe manufacturing; automotive manufacturing; machine parts manufacturing; electronics manufacturing and assembling; glass fabrication and finishing; and repair, overhaul, and equipment maintenance.

Categories of available technologies discussed include aqueous cleaners, semi-aqueous cleaners, petroleum hydrocarbons, hydrochlorofluorocarbons (HCFCs), miscellaneous organic solvents, supercritical fluids, and carbon dioxide snow. Categories discussed under emerging technologies include catalytic wet oxidation cleaning and absorbent media cleaning.

The Pollution Prevention Strategy Section discusses the main federal environmental regulations influencing the move toward application of new cleaning technologies. The Cleaner Technology Transfer Considerations Section identifies several databases that can assist users in choosing a cleaning technology. Various characteristics and multiple-attribute selection methods are also presented to help the user in narrowing the potential number of possible cleaning agents as alternatives to chlorinated solvents. Recommendations on the use of vendors are also presented.

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### ***Cleaning and Degreasing Process Changes (625/R-93/017)***

This guide describes cleaner technologies that can be used to reduce waste in cleaning and degreasing operations. The focus is primarily on process changes that use different technologies for cleaning or eliminate the need for cleaning solvent as part of a production operation. Cleaning and degreasing processes are applied in a variety of industrial processes to remove dirt, soil, and grease. Cleaning and degreasing operations are usually carried out as a final step in manufacturing a product, as a preliminary step in preparing a surface for further work as in electroplating, or as an operation between equipment uses. Technologies discussed include commercially available technologies that

include add-on controls to existing vapor degreasers, completely enclosed vapor cleaning, automated aqueous cleaning, aqueous power washing, ultrasonic cleaning, low-solids fluxes, and inert atmosphere soldering. Emerging technologies are also discussed, including vapor storage technology, vacuum furnace, laser cleaning, plasma cleaning and fluxless soldering technologies as well as replacements for tin-lead solder joints.

Sufficient information is presented to select one or more commercially available technologies for further analysis and in-plant testing. Pollution prevention benefits, reported applications, operational benefits, and limitations are discussed for each of the technologies presented. The main federal environmental regulations influencing the application of new cleaning technologies are discussed in the Pollution Prevention Strategy Section.

The Cleaner Technology Transfer Considerations Section contrasts options for using new cleaning equipment with semi-aqueous or aqueous cleaner alternatives. Information on pilot testing of technologies and processes as well as considerations for vendors' assistance in selecting alternative cleaning methods is also presented.

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### ***Seminars/Workshops***

#### ***Construction Quality Assurance/ Construction Quality Control (CQA/CQC) for Waste Containment Facilities/Hydrologic Evaluation of Landfill Performance (HELP) Model***

In selecting and designing the components (composite liner, slurry wall, cover) of RCRA and Comprehensive Environmental Response, Compensation, and Liability Act waste containment facilities, significant resources are expended. However, without conducting proper quality control and quality assurance measures during the manufacture and construction of facility materials and components, there will be no assurance that the facility will perform as designed, resulting in costly rework or failure of the facility.

Procedures have been developed that can provide a high degree of assurance that a waste containment facility has been constructed and will perform "as designed." These procedures, when followed by trained and experienced personnel as part of an overall quality control and quality assurance program, will satisfy all parties involved (regulatory, owner/operator, design engineer, contractor) that the remedial alternative is sound and reliable.

At most waste containment facilities, liquid management systems are critically

important for limiting leachate generation and migration. Leachate collection and liner systems restrict migration of leachate from waste containment sites by limiting leakage through liners and promoting leachate collection. The HELP model aids in the design and evaluation of these systems.

The Center for Environmental Research Information (CERI) will be conducting ten, two-day seminars addressing proper quality control and quality assurance for waste containment facilities. In addition, a detailed overview of the newly updated HELP model will be presented. The dates and locations for the seminars are as follows:

Boston, MA	June 6-7, 1994
Atlanta, GA	June 8-9, 1994
New York, NY	June 20-21, 1994
Philadelphia, PA	June 22-23, 1994
Dallas, TX	July 25-26, 1994
San Francisco, CA	July 26-27, 1994
Seattle, WA	July 27-28, 1994
Chicago, IL	Aug. 8-9, 1994
Kansas City, MO	Aug. 9-10, 1994
Denver, CO	Aug. 10-11, 1994

For information on the technical content of the seminars, contact Dan Murray, CERI, at 513-569-7522 (513-569-7585, Fax). For registration information, contact Eastern Research Group, Inc. (ERG), Registration Office at 617-647-7374 (617-674-2906, Fax).

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### ***Control of Combined Sewer Overflows***

Combined sewer overflows (CSOs) are discharges of a mixture of urban runoff, sewage, and industrial and commercial wastewater. During wet weather, combined sewer systems cannot handle the increased flows resulting from the inflow of rainwater, causing overflows to occur at designated points in the system and resulting in degradation of receiving water quality. CSOs are unique in their characteristics due to the sources of contamination that contribute to them. Many view CSOs as another point source discharge from a well-defined system of sewers. While that is partly true, a CSO is more like a nonpoint source discharge in its character. CSOs, like nonpoint sources, are triggered during wet weather. Their duration and frequency are related more to the nature of precipitation than anything else. The pollutant characteristics of CSOs are a function of land use, which affects the quality of urban runoff, and the quality of sewage and industrial and commercial wastewater flowing in the system.

Because of their unique and site-specific nature, CSOs are difficult to analyze, manage, and control. However, the effects of CSOs must be reduced to maintain the integrity of our nation's surface waters, especially where CSOs are only one of many sources that need to be addressed as part of regional- or watershed-level management and protection programs. Many approaches for evaluating and addressing the water quality effects of CSOs have been taken. In recent years, the U.S. EPA has increased its activities in controlling CSOs. CERI has recently developed a manual on CSO control, *Control of Combined Sewer Overflows* (EPA/625/R-93/007). This seminar series is a follow-up to that manual. The purpose of these two-day seminars will be to provide technical information on state-of-the-art methods and technologies for evaluating and controlling CSOs. The intent of the seminars is to provide information that complements the manual by using numerous case studies to illustrate the application of CSO control practices and technologies in the field.

The dates and locations for the seminars are as follows:

Boston, MA	Aug. 15-16, 1994
Portland, OR	Aug. 18-19, 1994
Pittsburgh, PA	Aug. 30-31, 1994
Chicago, IL	Sept. 1-2, 1994
E. Brunswick, NJ	Sept. 26-27, 1994

For information on the technical content of the seminars, contact Dan Murray, CERI, at 513-569-7522 (513-569-7585, Fax). For registration information contact ERG, Registration Office at 617-674-7374 (617-674-2906, Fax).

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### **Managing Environmental Problems at Inactive and Abandoned Metals Mine Sites**

This seminar series is being sponsored jointly by CERI and the Risk Reduction Engineering Laboratory to provide information on practical approaches to managing inactive and abandoned metals mines in an environmentally sound manner. The seminar will focus on remediation and management techniques.

The target audience includes all individuals associated with or interested in the management (e.g., source control, pathway interrupt, and treatment) of mining wastes from inactive mining sites, such as mining company owners/operators, environmental specialists, public lands administrators, federal and state regulators, and citizens associated with environ-

mental or other groups concerned about mining wastes. No registration fee is charged for attendance at these seminars.

For technical information, contact Ed Barth, CERI, at 513-569-7669. For registration information, contact Deborah Kanter at ERG, 617-674-7620, (617-674-2906 Fax).

Seminar dates and locations:

Butte, MT	Aug. 8-9, 1994
Denver, CO	Nov. 15-16, 1994
Sacramento, CA	Nov. 17-18, 1994

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*EPA is establishing a database of GRITS/STAT users. The database will be used to notify GRITS/STAT users of updates to the software and potential problems and solutions encountered in using the software. If you are a GRITS/STAT user, send your name, organization, address, and phone number to the following address:*

**Mary Bitney  
WSTM/RCRA/GEOL  
USEPA Region 7  
726 Minnesota Avenue  
Kansas City, KS 66101**

*EPA is pleased to offer you software we feel will enable you to analyze technical data efficiently. Since the software is currently being improved and expanded, send enhancement ideas for it or any problems encountered while using it to the above address. Hotline telephone support is available by calling 913-551-7074.*

### **Wellhead Protection**

EPA's Office of Science, Planning and Evaluation (OSPPE) has joined forces with its Office of Ground Water and Drinking Water and the National Rural Water Association to facilitate the protection of ground water in small and rural communities. State workshops are being held to promote awareness of ground water and wellhead protection and provide specific information on how to go about it. They inform and instruct small community decision makers and others involved in the development of wellhead protection programs. Participants have included utility board members, local health departments, state extension agents, well drillers, the League of Women Voters, and local media. Workshop presentations include the following: Introduction to Ground Water, Ground Water Contamination, Resource Protection, and Five Steps to Protection. Following the presentations,

the participants break into small groups and work through a case study to develop a wellhead protection plan. The goal of this process is for participants to learn the procedure for developing a wellhead protection plan well enough to apply it in their own communities. Workshop participants receive an information packet on wellhead protection containing materials to use when they return to their communities. As of April 1994, four workshops each had been held in Arkansas, California, Florida, Georgia, Idaho, Iowa, Kentucky, New Jersey, Oklahoma, Pennsylvania, Utah, West Virginia, and Wisconsin. Approximately 2,200 individuals attended these 52 workshops. Future workshops are planned for Michigan, Texas, Oregon, and the northeastern sector of the U.S. For more information, contact David Streecher of the National Rural Water Association at 405-252-0629 or Jim Smith of the Center for Environmental Research Information at 513-569-7355.

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### **Other Meetings**

#### **Environmental Problem Solving with Geographic Information Systems (GIS)**

Solving environmental problems is made more complex with consideration of cross-media pollutant transport and watershed-based decision making. The application of GIS to environmental problem solving has increased greatly the manipulation and analysis of relational and spatial data providing environmental decision makers with a powerful tool for the analysis of multimedia environmental data over increasingly broad areas (watersheds, states, regions).

CERI will conduct a national conference on the application of GIS to environmental problem solving. The goal of this conference will be to exchange information on the process of using GIS in environmental applications, rather than on the programming of specific GIS systems. While the approach to using GIS will vary from application to application, a common, technically sound framework for applying GIS to environmental problems should be used. This conference seeks to examine each component of this framework with papers that address the following:

- Problem identification and definition;
- Data requirements (coverage, scale), availability, documentation, reliability, and acquisition;
- Approaches considered and selected for solving the problem;
- Challenges and pitfalls encountered; and

- Interpretation of results, including level of confidence achieved based on data quality and approach taken.

The audience is expected to include environmental engineers, scientists, planners, and academics who are applying GIS to environmental problem solving or are considering future use of GIS for environmental applications. The audience is likely to represent a cross-section of federal, state, and local agencies; the private sector; and academic institutions.

The conference will be held in Cincinnati, Ohio, on September 21-23, 1994.

For information on the technical content of the conference, contact Sue Schock (513-569-7551) or Dan Murray (513-569-7522) at CERL. For registration information, contact ERG, Registration Office at 617-674-7374 (617-674-2906, Fax).

### **Symposium on Intrinsic Bioremediation of Ground Water**

A symposium on Intrinsic Bioremediation of Ground Water will be held August 30-September 1, 1994, in Denver, Colorado. This 3-day symposium is being organized by EPA's Biosystems Technology Development Program (BTDP) and the U.S. Geological Survey (USGS), with funding from EPA and the U.S. Air Force. The purpose of the symposium is to explore the capabilities and limitations of intrinsic bioremediation (also known as natural remediation or bioattenuation) for treatment of contaminated ground water.

Symposium presentations will examine the state of the science of intrinsic bioremediation, as well as regulatory issues associated with application of the technology. Presentations will focus on identifying the primary controls on intrinsic bioremediation and the regulatory requirements for use of intrinsic bioremediation. The symposium will provide an opportunity for exchange of information among federal agencies, states, industry, and consultants.

For technical information, contact Fran Kremer, 513-569-7346. To register for the symposium, call ERG, at 617-674-7374. For more information about the symposium, call Helen Murray of ERG at 617-674-7307.

### **Sixth Annual Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations**

The sixth annual Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations, will be held June 28-30, 1994, in San Francisco, California. This 3-day symposium is being sponsored by EPA's Biosystems Technology Development Program (BTDP), which coordinates EPA's bioremediation research and development activities, including the Agency's field evaluations of site cleanups using bioremediation.

The symposium will consist of technical paper and poster presentations on the bioremediation projects undertaken by BTDP in 1993, as well as projects conducted by EPA's Hazardous Substance Research Centers (HSRCs). Presentation topics will include *in situ* treatment of surface and subsurface contaminants, *ex situ* treatment of aqueous- and gaseous-phase contaminants, and *ex situ* treatment of soil contaminants. The target audience for the symposium includes researchers and field personnel from federal, state, and local government agencies; industry; technology vendors; consultants; and academia.

For technical information, contact Fran Kremer, 513-569-7346. To register for the 1994 bioremediation symposium, call ERG, at 617-674-7374. For more information about the symposium, call Helen Murray of ERG at 617-674-7307.

### **AWMA Annual Meeting**

EPA will again participate in the Air and Waste Management Association's Annual Meeting, displaying some of its research and technology transfer achievements in air pollution control and waste management. The annual meeting will be held June 19-24, 1994, in Cincinnati, Ohio. A major part of EPA's exhibit consists of distributing technology transfer products and guidance documents from the Office of Research and Development and the program offices. In addition, demonstrations are given on various computer software packages available for assisting the regulated community with compliance problems.

Participating in the exhibit this year will be several ORD laboratories, the Office of Air Quality Planning and Standards, and the Technology Innovation Office (Superfund).

Approximately 600 exhibitors are expected this year with about 6,000 attendees. Such a large gathering of professionals in air pollution control and waste management is a unique opportunity for EPA to "get its message out" to its public, the regulated community and other regulators.

### **AWWA Annual Conference**

The EPA Offices of Research and Development (ORD) and Groundwater and Drinking Water (OGWDW) will again cooperate in an exhibit at the June 19-23, 1994, American Water Works Association (AWWA) Annual Conference and Exposition in New York, New York. Approximately 11,000 state and utility personnel along with consultants, manufacturers and academicians regularly attend this meeting. This is the ninth successive year in which ORD and OGWDW have collaborated to provide a joint EPA exhibit.

As part of the exhibit, ORD and OGWDW display and make available to participants many publications that are pertinent to the Agency's drinking water program. At last year's meeting almost 3,000 ORD publications were requested by visitors to the booth.

Several EPA research scientists are participating in the conference's technical program by presenting papers. Examples from the Risk Reduction Engineering Laboratory are *Survival of a Fraction of Heterotrophic Bacteria Indigenous to the Ohio River after Prolonged Exposure to Free Chlorine* by Jim Owens; *Helping Small Systems Comply with Drinking Water Regulations* by Ben Lykins; *Cryptosporidium: The Milwaukee Experience and Relevant Research* by Kim Fox; *A Systematic Study on the Control of Lead in a New Building* by Darren Lytle; *Control of DBPs by Enhanced Coagulation* by Dick Miltner; *Lead Solubility: Control and Possible Impacts on Distribution Systems*, by Mike Schock; *Impact of the SDWA Regulations on Water Quality in Drinking Water Distribution Systems: Effects of Tanks and Reservoirs* by Bob Clark; and *Regulatory Implications of Using Biological Treatment* by Bob Clark.

## ORD BBS Update

[Call 516-569-7610 to access the ORD Electronic Bulletin Board System]

### **New Conference: Sewage Sludge—Biosolids—Residuals**

The purpose of this conference is to provide a forum for presentation and discussion of relevant regulations, guidance information, technical publications and means of getting further assistance. Its intended users include, but are not limited to, residuals management professionals, system managers, regulators, equipment manufacturers, system design engineers, and academicians. The impetus for having the conference is the promulgation of the 40 CFR Part 503. It is anticipated that information, guidance, and other answers will be required relevant to 40 CFR Parts 257 and 258 as they apply to situations such as the management of water treatment plant residuals and wastes that are placed in municipal solid waste landfills.

Coverage will include all facets of residuals treatment, such as conditioning, thickening, dewatering, stabilization, disinfection and combustion. Sampling and analyses can also be addressed. Use and disposal methodologies include land application, distribution and marketing, and surface disposal methods such as landfilling and dedicated land disposal. Where available guidance or other technical information cannot readily be found on the bulletin board, you, the user, should leave a message for "Captain Sludge." Captain Sludge will then either leave an answer for you on the bulletin board, or, if you leave a telefax number and/or phone number, respond in the most appropriate way.

It is suggested that every time you log on you review the news, bulletin, and new-file areas for the most recent information.

To access the conference, you will initially need to access the EPA Office of Research and Development's Bulletin Board (ORD BBS) using a modem and dialing 513-569-7610. The modem should be set for a speed of up to 9600 bps; 8 data bits; no parity; and a stop of 1. When you connect with ORD BBS for the first

time, you will be asked your name, affiliation, telephone number, interest in the bulletin board, and a password. The sludge/biosolids/residuals conference, Conference #11, can then be joined by letting the Sysop know you wish to register at no charge for it. The Sysop will ask you the following questions:

Name	Job Title	Fax #
Address	Interest in Residuals	

It is our hope that you find this conference useful and enjoyable!

### **New GRITS Conference**

All GRITS/STAT software and bulletins have been moved to a new conference on the ORD BBS—Conference 5. Type *j 5* at the main menu to join this new conference.

### **New Hypertext Document**

A hypertext format (electronic version) of the *Handbook: Control of Air Emissions from Superfund Sites* has been placed on the ORD BBS to provide easy access to users who need to review the contents of this handbook first made available from CERL last year. The handbook is still available, but a review of it via the ORD BBS may help users determine if they prefer a hard copy of the book or the electronic format shown on the BBS. It is available either way.

The handbook contains a clear "Help" system and is very user friendly. Users are encouraged to read the "readme.txt" file prior to using the hypertext format of the handbook. Instructions are available on the screen.

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### ERRATA

*EPA/625/R-92/013, Environmental Regulations and Technology: Control of Pathogens and Vector Attraction in Sewage Sludge*

*The three equations appearing on Page 106 should read as follows:*

$$\text{Salmonella sp. in MPN/4g} = \frac{\text{MPN index} / 100 \text{ mL} \times 4}{\% \text{ dry solids}}$$

$$\text{Salmonella sp. MPN/4g} = \frac{2 \times 4}{4.0} = 2$$

$$\text{Salmonella sp. MPN/4g} = \frac{\text{MPN index} / 100 \text{ mL} \times 4}{\% \text{ dry solids}}$$

*The mistake in the equations was in dividing MPN by 1 g instead of by 4 g.*

## Future Meetings

Meeting	Title	Date(s)	Location	Contact	Phone No.
Seminar	Construction Quality Assurance/Construction Quality Control (CQA/CQC) for Waste Containment Facilities/Hydrologic Evaluation of Landfill Performance (HELP) Model	June 6-7, 1994 June 8-9, 1994 June 20-21, 1994 June 22-23, 1994 July 25-26, 1994 July 26-27, 1994 July 27-28, 1994 Aug. 8-9, 1994 Aug. 9-10, 1994 Aug. 10-11, 1994	Boston, MA Atlanta, GA New York, NY Philadelphia, PA Dallas, TX San Francisco, CA Seattle, WA Chicago, IL Kansas City, MO Denver, CO	ERG (registration)  Dan Murray (content)	617-647-7374 617-674-2906 (Fax)  513-569-7522
Seminar	Control of Combined Sewer Overflows	Aug. 15-16, 1994 Aug. 18-19, 1994 Aug. 30-31, 1994 Sept. 1-2, 1994 Sept. 26-27, 1994	Boston, MA Portland, OR Pittsburgh, PA Chicago, IL E. Brunswick, NJ	ERG (registration)  Dan Murray (content)	617-647-7374 617-674-2906 (Fax)  513-569-7522
Seminar	Managing Environmental Problems at Inactive and Abandoned Metals Mine Sites	Aug. 8-9, 1994 Nov. 15-16, 1994 Nov. 17-18, 1994	Butte, MT Denver, CO Sacramento, CA	Deborah Kanter (registration)  Ed Barth (content)	617-674-7620 617-674-2906 (Fax)  513-569-7669
Workshop	Wellhead Protection	To be announced	To be announced	David Streeter or Jim Smith	405-252-0629  513-569-7355
Conference	Environmental Problem Solving with Geographic Information Systems	Sept. 21-23, 1994	Cincinnati, OH	ERG (registration)  Sue Schock or Dan Murray (content)	617-647-7374 617-674-2906 (Fax)  513/569-7551 513/569-7522
Symposium	Intrinsic Bioremediation of Ground Water	Aug. 30-Sept. 1, 1994	Denver, CO	ERG (registration)  Fran Kremer (content)	617-647-7374 617-674-2906 (Fax)  513-569-7346
Symposium	Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations	June 28-30, 1994	San Francisco, CA	ERG (registration)  Fran Kremer (content)	617-647-7374 617-674-2906 (Fax)  513-569-7346

## TECHNOLOGY TRANSFER MATERIAL

### MANUALS

Phosphorus Removal (Sept. 1987) .....	625/1-87/001
Land Treatment of Municipal Wastewater (Oct. 1981) .....	625/1-81/013
Supplement for Land Treatment of Municipal Wastewater (Oct. 1984) .....	625/1-81/013a
Dewatering Municipal Wastewater Sludges (Sept. 1987) .....	625/1-87/014
Land Application of Municipal Sludge (Oct. 1983) .....	625/1-83/016
Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants (Oct. 1985) .....	625/1-85/018
Municipal Wastewater Disinfection (Oct. 1986) .....	625/1-86/021
Constructed Wetlands and Aquatic Plant Systems for Municipal Wastewater Treatment (Oct. 1988) .....	625/1-88/022
Fine Pore Aeration Systems (Oct. 1989) .....	625/1-89/023
Alternative Collection Systems for Small Communities (Oct. 1991) .....	625/1-91/024
Guidelines for Water Reuse (Sept. 1992) .....	625/R-92/004
Wastewater Treatment/Disposal for Small Communities (Sept. 1992) .....	625/R-92/005
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