



# Innovative Technologies for Site Characterization and Remediation

## Recent Releases

The EPA Technology Innovation Office is pleased to announce the availability of new publications and data systems regarding technologies for remediation and site characterization. TIO strives to produce new products to meet the growing demand for technology information. These new offerings continue our focus on information resources that track the development and use of new technologies, describe remediation market opportunities, and monitor the supply of vendors who offer technologies to the marketplace. We have altered our traditional information distribution channels over the past several months and this brochure is an update on new and soon-to-be-released products. We hope you find these new selections useful, and we welcome your comments and suggestions for new products. Feel free to provide your comments through our new Clean-up Information Home Page at <http://clu-in.com>.

### Policy Changes



#### **EPA Directive: Initiatives to Promote Innovative Technologies in Waste Management Programs (April 29, 1996)**

Describes several U.S. EPA initiatives to facilitate the testing, demonstration, and use of innovative cleanup and field measurement technologies and stresses EPA's commitment to promoting environmental technology development and commercialization. [EPA 540-F-96-012] ① ③

### Groundwater Treatment



#### **Surfactant Injection for Ground-Water Remediation: State Regulators' Perspectives and Experiences**

Summarizes a series of eight interviews with state regulators concerning their experiences with reviewing applications or proposals to inject surfactants into the ground to remediate contaminated groundwater. The interviews included discussions of barriers or mistakes and advice to applicants and reviewers to affect a smoother process. [EPA 542-R-95-011] ① ③



#### **State Policies Concerning the Use of Injectants for *In Situ* Ground Water Remediation**

Focuses on identifying specific state regulatory and policy barriers to the use of techniques that enhance *in situ* ground water treatment technologies through injection of surfactants, cosolvents, and nutrients. The report describes experiences and policies of each state and provides the name of a contact person. [EPA 542-R-96-001] ① ③

#### **Emerging Abiotic *In Situ* Remediation Technologies for Groundwater and Soil**

Describes 96 field demonstrations or full-scale applications of *in situ* abiotic technologies for nonaqueous phase liquids and groundwater treatment.

**Surfactant Enhancements** [EPA 542-K-94-003] ① ③

**Treatment Walls** [EPA 542-K-94-004] ① ③

**Hydraulic/Pneumatic Fracturing** [EPA 542-K-94-005] ① ③

**Cosolvents** [EPA 542-K-94-006] ① ③

**Electrokinetics** [EPA 542-K-94-007] ① ③

**Thermal Enhancements** [EPA 542-K-94-009] ① ③

Product Suppliers—Codes explained on page 5

① NCEPI   ② NTIS   ③ CLU-IN   ④ AOL



## Soils Remediation

### Recent Developments for *In Situ* Treatment of Metal Contaminated Soils

Provides hazardous waste cleanup professionals with a status update on four technologies: electrokinetics, phytoremediation, soil flushing, solidification/stabilization for *in situ* remediation of soil contaminated with heavy metals. The report is intended to assist in screening new technologies early in the remedy evaluation and selection process. Available Summer 1996. [PB96-153135] ② ③

### Soil Vapor Extraction Enhancement Technology Resources Guide

Identifies information resources intended to aid users in remedial decisions. The publication includes abstracts of field reports and guidance documents. [EPA 542-B-95-003] ① ③

## Bioremediation

### Bioremediation Field Initiative Site Profiles

Current information on the status of bioremediation nationally, as well as information on sites at which field performance evaluations have been and are being conducted. [EPA 540-F-95-506(a-h)] ① ③

Champion Site, Libby, MT (a)

Public Service Company, CO (d)

Eielson Air Force Base, AK (b)

Escambia Wood Preserving Site, FL (g)

Hill Air Force Base, UT (c)

Reilly Tar & Chemical Corp., MN (h)

### Bioremediation of Hazardous Wastes: Research, Development and Field Evaluations

Papers and posters by leading bioremediation researchers from an EPA-sponsored conference aimed at bringing bioremediation into more widespread use.

[EPA 540-R-95-532] ① ③

### Bioremediation Field Evaluation—Champion International Superfund Site, Libby, MT

Results of a field evaluation on the use of prepared bed land treatment for wastes from a wood treatment site. [EPA 540-R-96-500] ① ③



### Bioremediation Field Evaluation—Eielson Air Force Base, AK

Field evaluation of active and passive warming techniques to enhance bioventing of soils contaminated with jet fuel. [EPA 540-R-95-533] ① ③



### Bioremediation in the Field Search System (BFSS) Software and Manual

Software and accompanying manual describing bioremediation field applications. Users can specifically design searches based on a number of parameters including waste type, media, process, and location. Software [EPA 540-R-95-508b] ① ③

User Documentation [EPA 540-R-95-508a] ① ③

## Technologies for Site Characterization



### Site Characterization and Monitoring: Bibliography of EPA Information Resources

Identifies EPA reports and publications on evaluation and use of innovative characterization and monitoring technologies. [EPA 542-B-96-001] ① ③

Product Suppliers (codes explained on page 5)

① NCEPI   ② NTIS   ③ CLU-IN   ④ AOL

## Cost and Performance Data

### Guide to Documenting Cost and Performance for Remediation Projects



Recommends the types of data to collect to document the performance and cost of future site cleanups. This guide specifies data elements for 13 conventional and innovative cleanup technologies. Numerous federal agencies have committed to use this guidance to collect data from full-scale cleanups, demonstrations and treatability studies. [EPA 542-B-95-002] ①③

### Abstracts of Remediation Case Studies



Contains two-page abstracts of each of the four case studies described below. The abstracts describe the site and waste treated, the waste source, technology, period of operation, technology vendor, technology description, contaminants and media treated, regulatory requirements, summary of performance and cost, contacts, and significance of the application. [EPA 542-R-95-001] ①③

### Remediation Case Studies

Case studies of full-scale site cleanups at Superfund sites and federal facilities. Document project design, operation, performance, cost, and lessons learned.

Remediation Case Studies: Bioremediation [PB95-182911] \$17.50 ②③

Remediation Case Studies: Groundwater Treatment [PB95-182929] \$17.50 ②③

Remediation Case Studies: Soil Vapor Extraction [PB95-182937] \$25.50 ②③

Remediation Case Studies: Thermal Desorption, Soil Washing, and *In Situ* Vitrification [PB95-182945] \$17.50 ②③

Remediation Case Studies: Four-Document Set [PB95-182903] \$67.00 ②③

## Technology Selection Guides



### Innovative Treatment Technologies: Annual Status Report (Seventh Edition)

Documents and analyzes the selection and use of innovative treatment technologies in the U.S. EPA Superfund Program and at some non-Superfund sites under the Departments of Defense and Energy. The report contains site-specific information on almost 400 projects, including soil vapor extraction, soil washing, bioremediation, solvent extraction, and other innovative technologies for treating groundwater and soil. [EPA 542-R-95-008] ①③



### Innovative Treatment Technologies: Annual Status Report Database (ITT Database)

Contains site-specific information on the nearly 400 sites documented in the seventh edition report. It is searchable and can generate reports. [EPA 542-C-95-002] ①③

### Remediation Technologies Screening Matrix and Reference Guide (Second Edition)

Designed to help site managers identify potentially applicable technologies for more detailed evaluation prior to remedy selection. It summarizes the strengths and limitations of 55 innovative and conventional technologies for remediation of soils, sediments, sludges, groundwater, and air emissions/off-gases. Technologies covered include treatment, containment, waste separation, and enhanced recovery. [PB95-104782] \$45 ②③

Product Suppliers—Codes explained on page 5

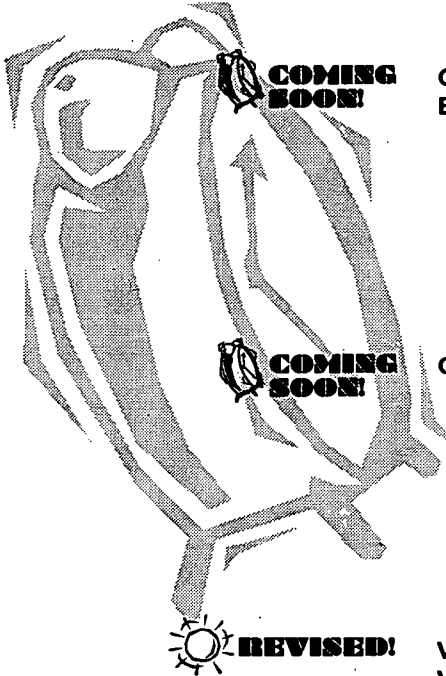
① NCEPI ② NTIS ③ CLU-IN ④ AOL

## The Technology Marketplace



### Regional Market Opportunities for Innovative Site Cleanup Technologies: Middle Atlantic States

Aimed at developers and vendors of site remediation services, this report provides information on potential markets for site cleanup technologies and services in Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia. It discusses specific opportunities in Superfund NPL, RCRA corrective action, Department of Defense, underground storage tank, and state abandoned waste site programs in each of these states. The report emphasizes market leads on near-term opportunities for cleanup technologies and services, and it provides interested parties with information on the state and regional organizations and program contacts for follow-up information. [PB96-121637] \$31 ② ③



### Cleaning Up the Nation's Waste Sites: Markets and Technology Trends (1996 Edition)

Addresses the future demand for remediation services for all major cleanup programs in the U.S., including Superfund, RCRA corrective action, underground storage tanks, Departments of Defense and Energy, other federal agencies, and state programs. The data on each program include the number of sites that remain to be cleaned up, general site and waste characteristics, and program organization and contacts. This second edition is an update of the 1993 report of the same name, and will be available Summer 1996. [PB96-178041] ② ③

### Completed North America Innovative Technology Demonstration Projects

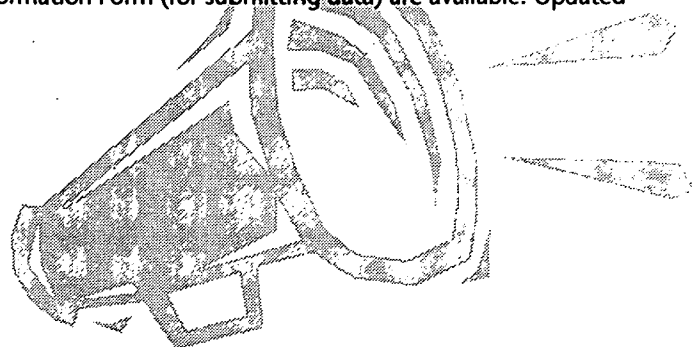
Summarizes over 200 innovative technology field demonstration projects sponsored by government agencies in North America. These demonstration projects include those performed, co-sponsored, or funded through programs developed by the U.S. EPA, the U.S. Department of Energy, the U.S. military services, the Canadian government, and the state of California. This report highlights key demonstration features, including contaminants treated, site type, technology type, media, vendor list, project sponsor, reports available, and contacts. Available Summer 1996. [PB96-153127] ② ③

### Vendor Information System for Innovative Treatment Technologies (VISITT) Version 4.0

DOS-based system containing information on 325 innovative remediation technologies offered by 204 vendors. The system is available for downloading and requires DOS 3.3 or higher, 640K of RAM, and 10MB hard disk space. A user manual and Vendor Information Form (for submitting data) are available. Updated annually. ① ③ ④

### Vendor Field Analytical and Characterization Technologies System (Vendor FACTS)

Windows-based system that provides vendors' information on field portable technologies for measuring and monitoring contaminated soil and groundwater. Technologies include: air measurement, analytical detectors, gas chromatography, chemical reaction-based indicators, immunoassay, soil gas analyzers. A user manual and Vendor Information Form (for submitting data) are available. Updated annually. ① ③ ④



Product Suppliers (codes explained on page 5)

① NCEPI ② NTIS ③ CLU-IN ④ AOL

# Sources for Documents and Databases

## Explanation of product supplier codes

- |         |        |          |       |
|---------|--------|----------|-------|
| ① NCEPI | ② NTIS | ③ CLU-IN | ④ AOL |
|---------|--------|----------|-------|

Products in this brochure are coded using the number system above. Each number represents one of the four product suppliers described below.

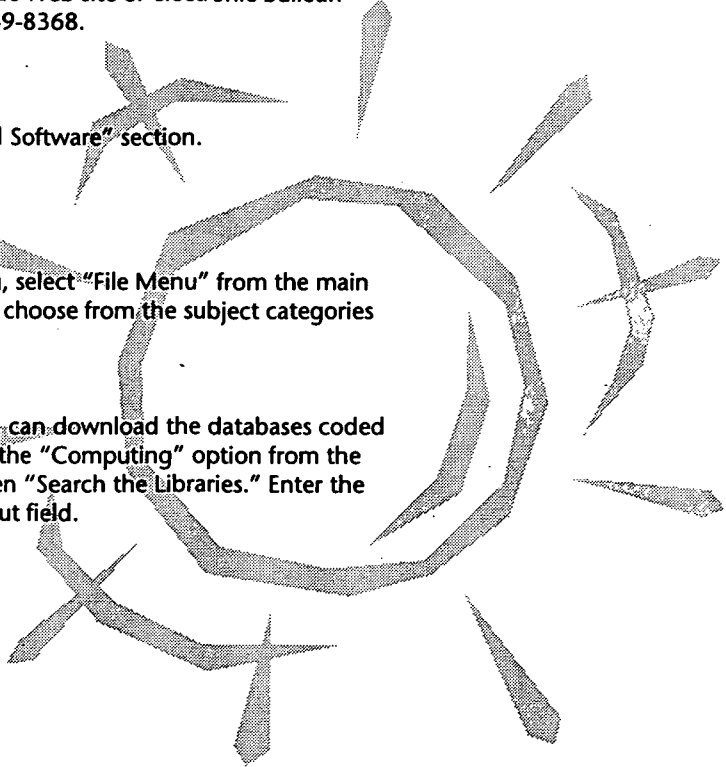
## Ordering Documents and Databases by Phone, Fax, or Mail

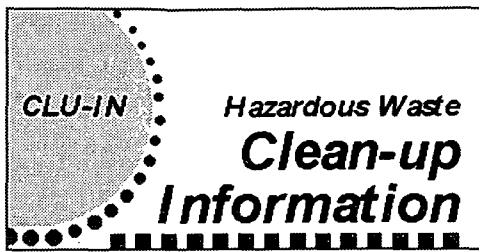
- ① **National Center for Environmental Publications and Information (NCEPI)**  
Publications coded with a ① can be ordered free of charge from NCEPI at the U.S. Environmental Protection Agency. Fax your order to (513) 489-8695 or mail your request to NCEPI, PO Box 42419, Cincinnati, OH 45242. Be sure to include the EPA document number with all orders.
- ② **National Technical Information Service (NTIS)**  
Publications coded with a ② can be purchased from the National Technical Information Service. Prices are listed at the end of each document description. Place an order with NTIS by telephone at (703) 487-4650 for regular orders or (800) 553-NTIS for rush service.



## Downloading Documents and Databases from Online Sources

- ③ **Clean-Up Information (CLU-IN) System**  
Databases and documents in this brochure coded with a ③ can be downloaded free of charge from the U.S. EPA's CLU-IN World Wide Web site or electronic bulletin board. The CLU-IN help line number is (301) 589-8368.  
  
**CLU-IN World Wide Web Site**  
<http://clu-in.com>  
Publications are located in the "Publications and Software" section.
- CLU-IN Electronic Bulletin Board**  
Modem: (301) 589-8366  
Telnet address: [clu-in.epa.gov](telnet://clu-in.epa.gov) (143.67.99.13)  
To see a listing of files available for downloading, select "File Menu" from the main menu, then select "File Directory Listings," then choose from the subject categories listed.
- ④ **America Online (AOL)**  
Subscribers to AOL, a commercial online service, can download the databases coded with a ④. For users with AOL version 2.5, select the "Computing" option from the main menu, then choose "Software Center," then "Search the Libraries." Enter the name of the database in the keyword search input field.





The Hazardous Waste Clean-up Information Home Page provides information about innovative treatment technologies to the hazardous waste remediation community. It describes programs, organizations, publications and other tools for EPA and other federal and state personnel, consulting engineers, technology developers and vendors, remediation contractors, researchers, community groups, and individual citizens. This site was created by the Technology Innovation Office of the United States Environmental Protection Agency but is intended as a forum for all stakeholders in waste site remediation.



This site is a product of the Technology Innovation Office of the United States Environmental Protection Agency. It is operated under contract by Environmental Management Support, Inc.

The Clean-up Information Home Page on the World Wide Web

<http://clu-in.com>



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