Bibliography for Innovative Site Clean-Up Technologies
March 1998 Update

Availability Information

Documents with EPA numbers:
Unless otherwise noted, publications with EPA 510, 540, 542, 600, 625 and 630 numbers are available from NCEPI (Hard copies are available at no cost while supplies last):

National Center for Environmental Publications and Information (NCEPI)
P.O. Box 42419
Cincinnati, OH 45242
Phone: 1-800-490-9198; 513-489-8190
Fax: (513) 489-8695
Web: www.epa.gov/ncepihom/
Be sure to include the EPA document number with all orders.

Government Printing Office (GPO)
Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954
(202) 512-1800; Fax: (202) 512-2250
Web address: www.gpo.gov

OSWER Directives:

OSWER Hotline: (703) 412-9810, 800-553-7672; or:
Superfund Docket/Document Center
1235 Jefferson Davis Hwy, Ground Level
Arlington, VA 22202
(703) 603-9232; Fax: (703) 603-9240
e-mail: superfund.docket@epamail.epa.gov
Web: www.epa.gov/swerust1/directiv/ (or search on "oswer directive" at www.epa.gov/swerrims/oswrrsch.htm)

Documents with PB numbers:
National Technical Information Service (NTIS)
5285 Port Royal Rd.
Springfield, VA 22161
1-800-553-6847; (703) 605-6000; Fax: 703-321-8547

Note: Many documents are available electronically on internet Web sites (see addresses below). A W next to one of the other symbols below or a ▲ denotes web availability. If a document is not accompanied by a web symbol, check the NEPI site listed below for possible availability.

▲ U.S. EPA Technology Innovation Office (TIO) Hazardous Waste Clean-Up Information:
www.clu-in.com

❖ U.S. EPA Office of Research and Development (ORD),
Cincinnati, OH (513) 569-7562
www.epa.gov/ORD/whatsnew.htm

❖ U.S. EPA Office of Research and Development (ORD) SITE Program:
www.epa.gov/ORD/SITE/whatsnew.html

❖ U.S. EPA Office of Solid Waste and Emergency Response,
Hazardous Waste Division:
www.epa.gov/epaoswer/hazwaste/ca/index.htm

❖ U.S. EPA Office of Underground Storage Tanks (OUST):
www.epa.gov/swerust1/resource/index.htm

❖ U.S. EPA National Risk Management Research Laboratory
(NRMRL), Subsurface Remediation Information Center (SRIC), Ada, OK:
(580) 436-8651; Fax: (580) 436-8503
www.epa.gov/ahaazvuc/sric.html

❖ Federal Remediation Technologies Roundtable (FRTR):
www.frtr.gov

❖ U.S. EPA Superfund Program:
www.epa.gov/superfund/oerr/techres/index.htm

❖ Remediation Technologies Development Forum (RTDF):
www.rtdf.org

(cont.)
See availability information on page one
Treatment Technology Performance and Cost Data for Remediation of Wood Preserving Sites
EPA 625-R-97-009

Presumptive Remedies for Soils, Sediments, and Sludges at Wood Treater Sites
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B. EPA Program Information

B1. General

Consortium For Site Characterization Technology: Fact Sheet
EPA 542-F-97-020

EPA's Environmental Technology Verification Program Brochure
EPA 600-F-97-005

Remediation Technologies Development Forum (RTDF)
EPA 542-F-97-003

RTDF Update (fact sheet)
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Lasagna™ Public-Private Partnership
EPA 542-F-97-012a

Bioremediation of Chlorinated Solvents Consortium
EPA 542-F-97-012b

Permeable Reactive Barriers Action Team
EPA 542-F-97-012c

IINERT Soil-Metals Action Team
EPA 542-F-97-012d

In Situ Flushing Action Team
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EPA 542-F-97-014

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Partnerships for the Remediation of Hazardous Waste
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The Public-Private Partnership Program for Evaluating Innovative Technologies: Fact Sheet
EPA 542-F-96-029 ▲

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EPA 540-F-97-500 ▼

EPA 540-R-97-500

Superfund Innovative Technology Evaluation Program: Technology Profiles, Ninth Edition
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EPA 540-F-95-502

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**B3. Treatability Studies - Guidance**

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EPA 540-S-94-500, PB94-177771

*Note: The following sections (C - H) list some documents for which several versions have been produced. Full Reports average >20 pages in length, Bulletins average 10-20 pages in length, Summaries and Capsules average 4 pages in length.

**C. Ground Water (In Situ Treatment)**

*See also GWRTAC on page 15.

Anaerobic Biodegradation of BTEX in Aquifer Material
EPA 600-S-97-003 Qw

Innovative Measures for Subsurface Chromium Remediation: Source Zone, Concentrated Plume, and Dilute Plume: Research Brief
EPA 600-S-97-005 Qw

Permeable Reactive Subsurface Barriers for Interception and Remediation of Chlorinated Hydrocarbon and Chromium (VI) Plumes in Ground Water
EPA 600-F-97-008 Qw

Proceedings of the Symposium on Natural Attenuation of Chlorinated Organics in Ground Water
EPA 540-R-97-504 Qw

Testing and Demonstration Sites for Innovative Ground-Water Remediation Technologies
EPA 542-R-97-002 ▲

Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites
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PB96-164546 ▲

Emerging Abiotic In Situ Remediation Technologies For Ground Water and Soil: Summary Report
EPA 542-S-95-001, PB95-239299

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EPA 600-SV-95-001 Qw

Pump and Treat Ground-Water Remediation: A Guide for Decision Makers and Practitioners
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D. Thermal Treatment

D1. General

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EPA 540-S-97-502, PB97-187819

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D2. Thermal Desorption

A Citizen's Guide to Thermal Desorption
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Thermal Desorption Unit, Eco Logic International, Inc.: Application Analysis Report
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E. Bioremediation

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Seminars: Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation
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EPA 600-A-95-140, PB96-13903

Bioventing Principles and Practices
Volume I: Bioventing Principles Manual
EPA 540-R-95-534A
Volume II: Bioventing Design Manual
EPA 540-R-95-534B

Combined Chemical and Biological Oxidation of Slurry Phase Polycyclic Aromatic Hydrocarbons
EPA 600-A-95-065, PB95-217642

EPA 540-R-95-529
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Two Zone PCE Bioremediation System, ABB Environment Services, Inc.: Emerging Technology Bulletin
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Review of Intrinsic Bioremediation of TCE In Groundwater At Picatinny Arsenal, New Jersey and St. Joseph, Michigan
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Bench-Scale Testing of Photolysis, Chemical Oxidation and Biodegradation of PCB Contaminated Soils, and Photolysis of TCDD-Contaminated Soils: Emerging Technology Summary
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EPA 540-F-95-506B

Escambia Wood Preserving Site, FL
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Hill Air Force Base Superfund Site, UT
EPA 540-F-95-506C

Libby Groundwater Superfund Site, MT
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EPA 540-F-95-506D

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In Situ Bioremediation of the Upper Aquifer, Champion International Superfund Site, Libby, Montana
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Eielson Air Force Base, Alaska
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Volume II, Figures and Tables EPA 600-R-95-156B

E4. Bioremediation In The Field Search System - see section L for additional information

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EPA 540-F-97-502

BFSS Database Version 2.1

F. Soil Vapor Extraction & Enhancements

Analysis of Selected Enhancements for Soil Vapor Extraction
EPA 542-R-97-007

EPA 600-R-97-009

Remediation Case Studies, Volume 6: Soil Vapor Extraction and Other In-Situ Technologies
EPA 542-R-97-009

A Citizen’s Guide to Soil Vapor Extraction and Air Sparging
EPA 542-F-96-008; EPA 542-F-96-024 (Spanish)

Review of Mathematical Modeling For Evaluating Soil Vapor Extraction Systems
EPA 540-R-95-513, PB95-243051

Soil Vapor Extraction (SVE) Enhancement Technology Resource Guide Air Sparging, Bioventing, Fracturing, Thermal Enhancements
EPA 542-B-95-003

Soil Vapor Extraction Implementation Experiences: Engineering Forum Issue Paper
EPA 540-F-95-030, PB95-963315

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EPA 542-B-95-003

Unterdruck-Verdampfer-Brunnen Technology (UVB)
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Zenon Cross-Flow Pervaporation Technology, Zenon Environmental, Inc.: Demonstration Bulletin
EPA 540-MR-95-511 ©
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EPA 600-R-94-142, PB94-205531 ©

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Subsurface Volatilization and Ventilation System (SVVS): Innovative Technology Report
EPA 540-R-94-529, PB96-116488 ©
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G. Physical/Chemical Treatment

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Project Summary  EPA 540-SR-97-504 ©

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EPA 542-F-96-004;  EPA 542-F-96-020 (Spanish) ▲

A Citizen’s Guide to In Situ Soil Flushing
EPA 542-F-96-006;  EPA 542-F-96-022 (Spanish) ▲

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EPA 542-F-96-016;  EPA 542-F-96-027 (Spanish) ▲

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Metal-Enhanced Abiotic Degradation Technology, EnviroMetal Technologies, Inc.: Demonstration Bulletin
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Metal-Enhanced Dechlorination of Volatile Organic Compounds Using an Aboveground Reactor
EPA 540-R-96-503 ©
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Ambersorb 563 Adsorbent, Roy F. Weston, Inc.: Emerging Technology Report
EPA 540-R-96-516, PB95-264164 ©
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Bench-Scale Testing of Photolysis, Chemical Oxidation and Biodegradation of PCB Contaminated Soils, and Photolysis of TCDD-contaminated Soils: Emerging Technology Summary
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Forager Sponge Technology, Dynaphore, Inc.: Innovative Technology Evaluation Report
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In Situ Vitrification, Geosafe Corporation: Innovative Technology Evaluation Report
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EPA 542-B-94-008, PB95-138665 ▲

▲ CLU-IN © ORD SRIC ● FRTR ◆ RTDF § GPO  ● OUST © OSWER ▼ SITE ▷ SF © NEPI  w web site

See availability information on page one
G2. Soil Washing

A Citizen's Guide to Soil Washing
EPA 542-F-96-002; EPA 542-F-96-018 (Spanish)

Remediation Case Studies: Thermal Desorption, Soil Washing, and In Situ Vitrification
EPA 542-R-95-005

Soil Washing/Soil Flushing, Volume 3: Innovative Site Remediation Technology
See section O

EPA 540-R-93-510
Demonstration Bulletin EPA 540-MR-93-510
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G3. Solvent Extraction

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H. Site Characterization

EPA 600-S-97-001

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EPA 600-R-97-149

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EPA 540-R-97-501

Field Validation of a Penetrometer-Based Fiber Optic Petroleum, Oil, and Lubricant (POL) Sensor: Project Summary
EPA 600-SR-97-055

PCB Analysis Technologies: Technology Verification Program Area
EPA 542-F-97-021

Soil/Soil Gas Sampling Technologies: Technology Verification Program Area
EPA 542-F-97-022

Wellhead Monitoring for Volatile Organic Compounds: Technology Verification Program Area
EPA 542-F-97-023

The Rapid Optical Screening Tool (ROST™) Laser-Induced Fluorescence (LIF) System for Screening of Petroleum Hydrocarbons in Subsurface Soils
EPA 600-R-97-020

Site Characterization Analysis Penetrometer System (SCAPS) Laser-Induced Fluorescence (LIF) Sensor and Support System: Innovative Technology Verification Report
EPA 600-R-97-019

Cone Penetrometer Laser-Induced Fluorescence (LIF), Technology Verification Program: Fact Sheet
EPA 542-F-96-009B

Field Portable X-Ray Fluorescence (FPXRF), Technology Verification Program: Fact Sheet
EPA 542-F-96-009A

EPA 600-S-96-001

Portable Gas Chromatograph/Mass Spectrometers (GC/MS), Technology Verification Program: Fact Sheet
EPA 542-F-96-009C

See availability information on page one
EPA 540-R-95-518 ▲
  Demonstration Bulletin EPA 540-MR-95-518 ▲

Envirogard PCB TestKit: Innovative Technology Evaluation Report
EPA 540-R-95-517 ▲
  Demonstration Bulletin EPA 540-MR-95-517 ▲

Field Analytical Screening Program, PCB Method: Innovative Technology Evaluation Report
EPA 540-R-95-521, PB96-130026 ▲
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EPA 540-R-95-528 ▲
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HNU-Hanby PCP Immunoassay Test Kit
EPA 540-R-95-515 ▲
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Rapid Optical Screen Tool (ROST)
EPA 540-R-95-519
  Demonstration Bulletin EPA 540-MR-95-519

Site Characterization and Monitoring: Bibliography of EPA Information Resources
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Vendor Field Analytical and Characterization Technologies System (Vendor FACTS) - see Section L

DNAPL Site Characterization
OSWER Publication 9355.4-16Fs, PB94-963317

I. Other Conferences & International Surveys

NATO/CCMS Pilot Study: Evaluation of Demonstrated and Emerging Technologies For The Treatment and Cleanup of Contaminated Land and Groundwater (Phase 2), Interim Status Report No. 203
EPA 542-R-95-006, PB95-227849 ▲

21st Annual RREL Research Symposium: Abstract Proceedings, April 1995
EPA 600-R-95-012

J. Technical Support

The 1997 ORD Technical Assistance Directory
EPA 600-K-97-001 ▲

Guide To Documenting Cost and Performance For Remediation Projects
EPA 542-B-95-002, PB95-182960 ▲

K. Community Relations

Second document numbers listed after the titles below are those for Spanish versions of these guides.

Citizen's Guides:

Citizens Guides to Understanding Innovative Technologies (a Listing of all Citizens Guides, including those available in Spanish)
EPA 542-F-96-013 ▲

Bioremediation
EPA 542-F-96-007; EPA 542-F-96-023 ▲

Chemical Dehalogenation
EPA 542-F-96-004; EPA 542-F-96-020 ▲

Innovative Treatment Technologies For Contaminated Soils, Sludges, Sediments, and Debris
EPA 542-F-96-001; EPA 542-F-96-017 ▲

In Situ Soil Flushing
EPA 542-F-96-006; EPA 542-F-96-022 ▲

Natural Attenuation
EPA 542-F-96-015; EPA 542-F-96-026 ▲

Phytoremediation
EPA 542-F-96-014; EPA 542-F-96-025 ▲

Soil Vapor Extraction and Air Sparging
EPA 542-F-96-008; EPA 542-F-96-024 ▲

Soil Washing
EPA 542-F-96-002; EPA 542-F-96-018 ▲

Solvent Extraction
EPA 542-F-96-003; EPA 542-F-96-019 ▲

Treatment Walls
EPA 542-F-96-016; EPA 542-F-96-027

See availability information on page one
L. Electronic Resources: Web Sites/Databases/Software/Listservers


Alternative Treatment Technology Information Center (ATTIC): A comprehensive computer database system providing current information on innovative treatment technologies. ATTIC can be accessed with a PC and modem (up to 33,600 baud rate) 24 hours a day at: (513) 569-7610, or via telnet at cinbbs.cin.epa.gov. Use these communications software settings: N parity, 8 data bits, 1 stop bits, ANSI or VT100 terminal emulation, Full duplex. Call the support line for further information at (513) 569-7272.

Bioremediation In The Field Search System (BFSS): PC-based software that provides information on approximately 500 waste sites across the U.S. where bioremediation is being tested or implemented or has been completed. Version 2.1 is available from ATTIC (see above), the ORD web site (www.epa.gov/ORD/WebPubs/biorem/), and from CLU-IN (see page 13). Version 2.0 diskettes are available from ORD publications at (513) 569-7562.

Completed North American Innovative Technology Demonstration Projects Database
EPA 542-B-96-002, PB96-153127 ▲

HYPERVENTILATE: A software guidance system created for vapor extraction systems - see Section F, SOIL VAPOR EXTRACTION AND ENHANCEMENT.

Innovative Treatment Technologies: 8th Annual Status Report Database - Version 2.0 (Downloadable or available as 3-disk set)
EPA 542-C-96-002 ▲

Remediation Technologies Screening Matrix and Reference Guide, Version 3.0 ●

Tank Racer: Software that estimates corrective action costs at underground storage tank sites.
$490.00/person (multi-user discounts available)
Contact Delta Technologies Group, Inc. at (303) 771-3103, ext. 100 for more information.

TechDirect Technology Information Service:
See page 14 for details.

Vendor Field Analytical and Characterization Technologies System (Vendor FACTS version 3.0): A database of innovative site characterization technologies and vendors: For more information, contact the HOTLINE at (800) 245-4505 or (703) 883-8448. Version 3.0 available from Clu-In web site.

Vendor Field Analytical and Characterization Technologies System (Vendor FACTS version 2.0) (download or order as 2-disk set)
EPA 542-C-97-001 ▲

Vendor FACTS Fact Sheet
EPA 542-F-95-001 ▲

Vendor FACTS Bulletin version 2.0
EPA 542-N-97-007

Vendor FACTS: Vendor Information Form (VIF) version 3.0 (Includes 3.5” disk)
EPA 542-R-97-005 ▲

Vendor System For Innovative Treatment Technologies (VISITT): A Windows-based system containing information on 325 innovative remediation technologies offered by 204 vendors. The system requires DOS 3.3 or higher, 640K of RAM, and 10MB hard disk space. Version 5.0 is now available and is updated annually. Order from NCEPI (see page 1 for contact information). For more information, contact the Hotline at (800) 245-4505 or (703) 883-8448.

VISITT version 5.0 (download or order as 2 disk set)
EPA 542-C-96-003 ▲

VISITT 5.0 Bulletin (includes order form)
EPA 542-N-96-006 ▲

VISITT User’s Manual, version 5.0 ▲

VISITT Vendor Information Form (VIF) 6.0 ▲

M. Technology Newsletters

Tech Trends (a newsletter on applied technologies for Superfund removals and remedial actions and for RCRA corrective action)

Latest issue:
February 1998, Issue No. 28
EPA 542-N-98-003 ▲

Set of Back Issues (19 back issues in set)
EPA 542-E-95-001
Individual back issues through January 1993 ▲
Ground Water Currents (a newsletter on innovative ground-water treatment for Superfund Remediation and RCRA corrective action)

Latest issue:
March 1998, Issue No. 27
EPA 542-N-98-004 ▲

Set of Back Issues (10 back issues in set)
EPA 542-E-95-002
Individual back issues through April1995 ▲

Bioremediation In the Field (a newsletter on applications of bioremediation technologies under EPA’s Bioremediation Field Initiative)

Latest issue:
May 1996 Issue No. 13
EPA 540-N-96-500 ▲

Individual back issues through March1994 ▲

N. Other Federal Programs and Partnerships

See also individual technology sections

Federal Remediation Technologies Roundtable (FRTR)
The Federal Remediation Technologies Roundtable is a forum for joint activity regarding the development and demonstration of innovative technologies for hazardous waste site remediation. Member agencies included EPA, DOD, DOE, and DOI. Links to Cost and Performance Reports for various technologies implemented at Superfund sites can be found on this web site.

Remediation Technologies Development Forum (RTDF)
The Remediation Technologies Development Forum is a consortium of partners from government, industry, and academia working to develop safer, more effective, and less costly hazardous waste characterization and treatment technologies.

O. Innovative Site Remediation
Engineering Technology Monographs

See availability information on page one

The WASTECH Consortium (The American Academy of Environmental Engineers (AAEE), EPA’s Technology Innovation Office (TIO), DOD and DOE), has developed a series of comprehensive, authoritative engineering monographs. These peer-reviewed state-of-practice publications range in size from 150-250 pages and provide definitive engineering information on the following innovative technologies:

Phase 1: Process Descriptions and Limitations
Bioremediation, Volume 1
Chemical Treatment, Volume 2
Soil Washing/Soil flushing, Volume 3
Solidification/Stabilization, Volume 4
Solvent/Chemical Extraction, Volume 5
Thermal Desorption, Volume 6
Thermal Destruction, Volume 7
Vacuum Vapor Extraction, Volume 8

Phase 2: Design and Application
Chemical Treatment, Volume 2
Solidification/Stabilization, Volume 4
Thermal Desorption, Volume 5
Thermal Destruction, Volume 6

Additional volumes on the following technologies will become available over the next six months:
Bioremediation, Volume 1
Liquid Extraction Technologies, Volume 3
Vapor Extraction and Air Sparging, Volume 7

These monographs are available from AAEE, (410) 266-3390. Phase 1 publications cost $69.95 each or $495.00 for the full set, plus shipping and handling. Phase 2 publication prices are: $89.95 for Vols. 1 and 7; $79.95 for Vols. 2 - 4; $69.95 for Vols. 5 and 6; $495.00 for the full set.
The Hazardous Waste Clean-up Information (CLU-IN) World Wide Web Site and Electronic Bulletin Board System (BBS) provide information about innovative treatment technologies to the hazardous waste remediation community. Both the web site and BBS offer a variety of information for federal and state personnel, consulting engineers, technology developers and vendors, remediation contractors, researchers, community groups, and individual citizens.

**CLU-IN World Wide Web Site**
http://clu-in.com
- Read about the operation, development, and commercialization of innovative site characterization and remediation technologies and programs such as interagency consortia and public-private partnerships designed to facilitate their use.
- Download recent documents and databases designed to aid those responsible for hazardous waste site remediation.
- Link to Internet sources of information on environmental restoration and technology development.
- Link to the CLU-IN BBS with the click of a button.

**CLU-IN Electronic Bulletin Board System (BBS)**
(301) 589-8366
- Download the same files and databases offered on the WWW site.
- Communicate with hazardous waste professionals online through the message exchange system.
- Visit Special Interest Group areas moderated by EPA's Office of Underground Storage Tanks (UST), Association of State and Territorial Solid Waste Management Officials (ASTSWMO), and others.
TechDirect
Technology Information Service

TechDirect is an information service that highlights new publications and events of interest to site remediation and site assessment professionals. TechDirect will send you a periodic e-mail message describing the availability of publications and information on upcoming events. For publications, the message will explain how to obtain a hard copy or how to download an electronic version.

TO SUBSCRIBE

STEP 1: Compose an e-mail message to:
listserver@unixmail.rtpnc.epa.gov

STEP 2: Do not include a subject line in your message; however, you may add a period “.” if your mailserver requires an entry.

STEP 3: The body of your message should say:
subscribe techdirect firstname lastname

TIP: Please have your Postmaster exclude “techdirect@unixmail.rtpnc.epa.gov” from your AutoResponder if you are using one.

INFORMATION

For more information on policies, programs, organizations, publications and databases useful to waste remediation professionals, visit the Hazardous Waste Clean-Up Information (CLU-IN) Web Site at http://clu-in.com.

If you have any questions or comments concerning this service, please contact the U.S. EPA Technology Innovation Office at (703) 603-9910 or e-mail heimerman.jeff@epamail.epa.gov.
ETV

EPA's Environmental Technology Verification Program

ETV was created to substantially accelerate the entrance of new environmental technologies into the domestic and international marketplace. ETV verifies the performance of commercial-ready, private-sector technologies through the evaluation of objective and quality assured assessment of these technologies.

ETV partners with DOE's Sandia National Laboratories (New Mexico) and DOE's Oak Ridge National Laboratories (Tennessee) to verify technologies for site characterization and environmental monitoring.

For more information, visit the ETV web site at www.epa.gov/etv or contact the ETV Pilot Managers:

Eric Koglin, EPA, 702-798-2432
Rodger Jenkins, Oak Ridge, 423-576-8594
Dan Horschel, Sandia, 505-845-9836

GWRTAC

Ground-Water Remediation Technologies Analysis Center

The Ground-Water Remediation Technologies Analysis Center is operated by the National Environmental Technology Applications Center (NETAC), in association with the University of Pittsburgh's Environmental Engineering Program, under a cooperative agreement with the U.S. EPA's Technology Innovation Office (TIO). The role of GWRTAC is to compile, analyze and disseminate information on innovative ground-water remediation technologies to industry, the research community, contractors, government, investors and the public. Case studies, technology overviews, technology evaluation reports and vendor information are available in hard copy or on the Web site (www.grwrtac.org).

For more information, call (800) 373-1973, or (412) 826-5320, ext. 215; Fax: (412) 826-5552; e-mail: gwrtac@netac.org, visit the web site at www.grwrtac.org, or write to: GRWTAC, 615 William Pitt Way, Pittsburgh, PA 15238.