United States Environmental Protection Agency | Solid Waste and Emergency Response (5102G) | EPA 542-B-98-001 March 1998 www.clu-in.org

Bibliography for Innovative Site Clean-Up Technologies

March 1998 Update

NOW THE EXCITING SEQUEL TO 'BIBLIOGRAPHY'!!

!!NEW/UPDATED ELECTRONIC RESOURCES & WEB SITES!!

!!DOZENS OF NEW DOCUMENTS!!

This bibliography is a selective list of EPA and EPA-sponsored information resources pertaining to innovative hazardous waste remediation technologies. New titles are listed first in each section.

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
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Be sure to include the EPA document number with all orders.

§ Government Printing Office (GPO)

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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

Ω 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.)

🌐 EPA's National Environmental Publications Information (NEPI) web site offers more than 6000 EPA/EPA-related full-text documents, with more added daily.
www.epa.gov/cincl

A. Technology Survey Reports

A1. General

Guidance for Implementing Superfund Initiative 9A: Risk Sharing, March 24, 1998
EPA 542-B-98-005 ▲

Abstracts of Remediation Case Studies Volume 2
EPA 542-R-97-010, PB97-177570 ▲

Best Management Practices (BMPs) for Soil Treatment Technologies: Suggested Operational Guidelines to Prevent Cross-Media Transfer of Contaminants During Clean-Up Activities
EPA 530-R-97-007 ❒

Compendium of Hazardous Waste Remediation Managment Information
EPA 540-R-97-004 ▲

Remediation Case Studies, Volume 5: Bioremediation and Vitrification
EPA 542-R-97-008; PB97-177554 ▲

Remediation Case Studies, Volume 6: Soil Vapor Extraction and Other In-Situ Technologies
EPA 542-R-97-009, PB97-177562 ▲

Rules of Thumb for Superfund Remedy Selection
EPA 540-R-97-013, PB97-963301 ✚

Superfund Innovative Technology Evaluation Program: Technology Profiles, Ninth Edition
EPA 540-R-97-502 ▲✲

TechDirect Technology Information Service: Fact Sheet
EPA 542-F-97-004

Use of Monitored Natural Attenuation at Superfund RCRA, and Underground Storage Tank Sites
OSWER Directive 92004-17, Nov. 1997 ✱**w**

A Citizen's Guide to Innovative Treatment Technologies For Contaminated Soils, Sludges, Sediments, and Debris
EPA 542-F-96-001; EPA 542-F-96-017 (Spanish) ▲

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

Initiatives to Promote Innovative Technology In Waste Management Programs
OSWER Directive 9380.0-25, EPA 540-F-96-012, PB96-963507

Innovative Treatment Technologies: Annual Status Report, Eighth Edition
EPA 542-R-96-010

Abstracts of Remediation Case Studies Volume 1
EPA 542-R-95-001, PB95-201711 ▲

Progress In Reducing Impediments to the Use of Innovative Remediation Technology
EPA 542-F-95-008, PB95-262556

Remediation Case Studies, Volume 4: Thermal Desorption, Soil Washing and In Situ Vitrification
EPA 542-R-95-005, PB95-182945 ▲

Remediation Technologies Screening Matrix and Reference Guide, Version 3.0 ●

Assessment and Remediation of Contaminated Sediments (ARCS) Program
EPA 905-R-94-003

Profile of Innovative Technologies and Vendors For Waste Site Remediation
EPA 542-R-94-002, PB95-138418 ▲

A2. Remediation Technology Marketplace

Cleaning Up the Nation's Waste Sites: Markets and Technology Trends (1996 Edition)
EPA 542-R-96-005, PB96-178041 ▲
Executive Summary **EPA 542-R-96-005A**

Regional Market Opportunities For Innovative Site Cleanup Technologies: Southeastern States
EPA 542-R-96-007, PB96-199518 ▲

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Brownfields
Road Map to Understanding Innovative Technology Options for Brownfields
EPA 542-B-97-002 ▲

Explosives/Radioactive Waste
Approaches For Remediation of Federal Facility Sites Contaminated With Explosives or Radioactive Waste
EPA 625-R-93-013

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Molecular Bonding System for Heavy Metals Stabilization, Solucorp Industries Ltd.: Demonstration Bulletin
EPA 540-MR-97-507 ✲

Recent Developments For In Situ Treatment of Metal Contaminated Soils
EPA 542-R-97-004 ▲

Technology Alternatives for the Remediation of Pesticide-Contaminated Soil: Engineering Bulletin
EPA 540-S-97-500 ✲

Contaminants and Remedial Options at Selected Metal-Contaminated Sites
EPA 540-R-95-512, PB95-271961

Literature Review Summary of Metals Extraction Processes Used to Remove Lead From Soils: Project Summary
EPA 600-SR-94-006

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Separation/Concentration Technology Alternatives for the Remediation of Pesticide Contaminated Soil: Engineering Bulletin
EPA 540-S-97-503 ✲

Contaminants and Remedial Options at Pesticide Sites
EPA 600-R-94-202, PB95-183869

Organics
Contaminants and Remedial Options at Solvent-Contaminated Sites
PB95-177200

Underground Storage Tanks (UST)
Pay-For-Performance Cleanups: Effectively Managing Underground Storage Tank Cleanups
EPA 510-B-96-002 ✽w

Assessing UST Corrective Action Technologies: Lessons Learned about In Situ Air Sparging at the Denison Avenue Site, Cleveland, OH: Project Summary
EPA 600-SR-95-040

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EPA 510-R-96-001, S/N 055-000-005532 (GPO) §

How to Evaluate Alternative Cleanup Technologies For Underground Storage Tank Sites: A Guide For Corrective Action Plan Reviewers
S/N 055-000-00499-4 (GPO) ✽w§

Wood Preserving/Treatment
Seminar Series on Wood Preserving Site Remediation: Fact Sheet
EPA 625-F-97-003

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
EPA 540-R-95-128, PB95-963410, OSWER Directive 9200.5-162 ✚

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)
EPA 542-F-97-016 ❖

RTDF Question and Answers
EPA 542-F-97-017 ❖

RTDF Action Teams Fact Sheets:
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
EPA 542-F-97-013 ❖
Phytoremediation of Organics Action Team
EPA 542-F-97-014 ❖
Sediments Remediation Action Team
EPA 542-F-97-015 ❖

Bioremediation Action Committee: Fact Sheet
EPA 542-F-96-031 ▲

EPA's Small Business Innovation Research (SBIR) Program: Innovative Solutions for Environmental Problems
EPA 600-F-96-021 ⊕

Initiatives to Promote Innovative Technologies in Waste Management Programs
EPA 540-F-96-012 ▲

Partnerships for the Remediation of Hazardous Waste
EPA 542-R-96-006 ▲

The Public-Private Partnership Program for Evaluating Innovative Technologies: Fact Sheet
EPA 542-F-96-029 ▲

Federal Remediation Technologies Roundtable: 5 Years of Cooperation
EPA 542-F-95-007 ▲

B2. Superfund Innovative Technology Evaluation Program

Superfund Innovative Technology Evaluation: SITE on the Move: Fact Sheet
EPA 540-F-97-500 ▼

Superfund Innovative Technology Evaluation Program: Annual Report to Congress, FY 1995
EPA 540-R-97-500

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EPA 540-R-97-502 ▲✲

SITE Program Evaluation of the Sonotech Pulse Combustion Burner Technology
EPA 600-SR-97-061 ✲

SITE Emerging Technology Program Brochure
EPA 540-F-95-502

SITE Program: An Engineering Analysis of the Demonstration Program
EPA 540-R-94-530

B3. Treatability Studies - Guidance

Considerations In Deciding to Treat Contaminated Unsaturated Soils In Situ: Engineering Forum Issue Paper
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 Ωw

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

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

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

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
EPA 540-R-96-023, PB 96-963508 ✚

State Policies Concerning the Use of Injectants For In-situ Ground Water Remediation
PB96-164538 ▲

Surfactant-Enhanced DNAPL Remediation: Surfactant Selection, Hydraulic Efficiency, and Economic Factors: Research Brief
EPA 600-S-96-002 Ωw

Surfactant Injection For Ground Water Remediation: State Regulators' Perspectives and Experiences
PB96-164546 ▲

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

Light Nonaqueous Phase Liquids
EPA 540-S-95-500, PB95-267738 Ωw

Natural Attenuation of Trichlorethene at the St. Joseph, Michigan, Superfund Site
EPA 600-SV-95-001 Ωw

Pump and Treat Ground-Water Remediation: A Guide for Decision Makers and Practitioners
EPA 625-R-95-005 ✲w

Remediation Case Studies: Groundwater Treatment
EPA 542-R-95-003 PB95-182929 ▲

Evaluation of Technologies For In Situ Cleanup of DNAPL Contaminated Sites
EPA 600-R-94-120, PB94-195039 Ω

Ground Water Treatment Technologies Resource Guide
EPA 542-B-94-009, PB95-138657 ▲

Natural Attenuation of Hexavalent Chromium In Ground Water and Soils
EPA 540-S-94-505, PB95-182614 Ωw

Status Reports on In Situ Treatment Technology Demonstration and Applications ▲:

Cosolvents
EPA 542-K-94-006

Electrokinetics
EPA 542-K-94-007

Hydraulic/Pneumatic Fracturing
EPA 542-K-94-005

Surfactant Enhancements
EPA 542-K-94-003

Thermal Enhancements
EPA 542-K-94-009

Treatment Walls
EPA 542-K-94-004

The Use of Cationic Surfactants to Modify Aquifer Materials to Reduce the Mobility of Hydrophobic Organic Compounds
EPA 600-S-94-002, PB95-111951 Ω

D. Thermal Treatment

D1. General

How Heat Can Enhance In Situ Soil and Aquifer Remediation: Important Chemical Properties and Guidance on Choosing the Appropriate Techniques
EPA 540-S-97-502, PB97-187819 Ωw

SITE Program Evaluation of the Sonotech Pulse Combustion Burner Technology
EPA 600-SR-97-061 ✲

Development of a Photothermal Detoxification Unit: Emerging Technology Report
EPA 540-R-95-526, PB95-255733 ✲
Emerging Technology Bulletin **EPA 540-F-95-505 ✲**
Emerging Technology Summary **EPA 540-SR-95-526 ✲**

Reclamation of Lead From Superfund Waste Material Using Secondary Lead Smelters: Emerging Technology Report
PB95-199022
Project Summary **EPA 540-SR-95-504**

Waste Vitrification Through Electric Melting, Ferro Corporation: Emerging Technology Bulletin
EPA 540-F-95-503

In Situ Vitrification, Geosafe Corp.: Innovative Technology Evaluation Report
EPA 540-R-94-520
Demonstration Bulletin **EPA 540-MR-94-520**
Site Technology Capsule **EPA 540-R-94-520A**

Radio Frequency Heating, KAI Technologies, Inc.: Innovative Technology Evaluation Report
EPA 540-R-94-528
Demonstration Bulletin **EPA 540-MR-94-528**
Site Technology Capsule **EPA 540-R-94-528A, PB95-249454**

Radio Frequency Heating Technology, IT Research Institute/Brown & Root Environmental: Innovative Technology Evaluation Report
EPA 540-R-94-527, PB95-267084
Demonstration Bulletin **EPA 540-MR-94-527**
Site Technology Capsule **EPA 540-R-94-527A, PB95-231254**

D2. Thermal Desorption

A Citizen's Guide to Thermal Desorption
EPA 542-F-96-005; EPA 542-F-96-021 (Spanish) ▲

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

Thermal Desorption Implementation Issues: Engineering Forum Issue Paper
EPA 540-F-95-031, PB95-963315 ▲

Thermal Desorption System, Maxymillian Technologies, Inc.: Site Technology Capsule
EPA 540-R-94-507A, PB95-122800
Demonstration Bulletin **EPA 540-MR-94-507**

Thermal Desorption Unit, Eco Logic International, Inc.: Application Analysis Report
EPA 540-AR-94-504

Thermal Desorption Treatment: Engineering Bulletin
EPA 540-S-94-501, PB94-160603

Thermal Enhancements: Innovative Technology Evaluation Report
EPA 542-K-94-009 ▲

Thermal Desorption Remedy Selection, Guide For Conducting Treatability Studies Under CERCLA
EPA 540-R-92-074A, PB93-126597

E. Bioremediation

E1. General

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

Bioremediation of BTEX, Naphthalene, and Phenanthrene in Aquifer Material Using Mixed Oxygen/ Nitrate Electron Acceptor Conditions: Project Summary
EPA 600-SR-97-103 Ωw
EPA 600-R-97-120 (Full Report: In Press - available soon)

Remediation Case Studies, Volume 5: Bioremediation and Vitrification
EPA 542-R-97-008 ▲

Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites
OSWER Directive 9200.4-17 ✾

A Citizen's Guide to Bioremediation
EPA 542-F-96-007; EPA 542-F-96-023 (Spanish) ▲

A Citizen's Guide to Phytoremediation
EPA 542-F-96-014; EPA 542-F-96-025 (Spanish) ▲

Enhanced Bioremediation of BTEX Nutrients: Field Demonstration and Monitoring
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Innovative Methods for Bioslurry Treatment: Emerging Technology Report
EPA 540-R-96-505 ✲
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Emerging Technology Summary **EPA 540-SR-96-505 ✲**

Intrinsic Bioremediation of Fuel Contamination in Ground Water at a Field Site
PB96-139084

Seminars: Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation
EPA 625-K-96-001 ✲w

Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations
EPA 540-R-95-532, PB96-130729 ▲✲w

Bioremediation of Petroleum Hydrocarbons: A Flexible, Variable Speed Technology
EPA 600-A-95-140, PB96-13903

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

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

Ex-Situ Bioremediation Technology For Treatment of TNT-Contaminated Soils, J.R. Simplot: Innovative Technology Evaluation Report
EPA 540-R-95-529 ✲
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Microbial Activity in Subsurface Samples Before and During Nitrate-Enhanced Bioremediation
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Symposium on Bioremediation of Hazardous Wastes: Research, Development, and Field Evaluations, Abstracts: Rye Town Hilton, Rye Brook, New York, August 8-10, 1995
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Two Zone PCE Bioremediation System, ABB Environmnetal 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
PB95-252995

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EPA 540-SR-94-531

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EPA 540-R-94-508 ✲
Demonstration Bulletin **EPA 540-MR-94-508** ✲
Site Technology Capsule **EPA 540-R-95-508A** ✲

In Situ Biodegradation Treatment: Engineering Bulletin
EPA 540-S-94-502, PB94-190469

Solid Oxygen Source For Bioremediation In Subsurface Soils (revised)
EPA 600-J-94-495, PB95-155149

In Situ Bioremediation of Contaminated Unsaturated Subsurface Soils
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E2. Bioremediation Field Initiative Site Profiles ✲w

Eielson Air Force Base, AK
EPA 540-F-95-506B

Escambia Wood Preserving Site, FL
EPA 540-F-95-506G

Hill Air Force Base Superfund Site, UT
EPA 540-F-95-506C

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

Public Service Company of Colorado
EPA 540-F-95-506D

Reilly Tar and Chemical Corporation, MN
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E3. Bioremediation Field Performance Evaluations

Hill Air Force Base, UT
EPA 540-R-97-505 ✲

In Situ Bioremediation of the Upper Aquifer, Champion International Superfund Site, Libby, Montana
EPA 600-R-97-044 (In Press- available soon)

Champion International Superfund Site, Libby, Montana
EPA 540-R-96-500 ▲

Eielson Air Force Base, Alaska
EPA 540-R-95-533 ▲✲w

The Prepared Bed Land Treatment System, Champion International Superfund Site, Libby, Montana
Volume I, Text **EPA 600-R-95-156A**
Volume II, Figures and Tables **EPA 600-R-95-156B**

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

Bioremediation in the Field Search System Version 2.1: Fact Sheet
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F. Soil Vapor Extraction & Enhancements

Analysis of Selected Enhancements for Soil Vapor Extraction
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Michigan Soil Vapor extraction Remediation (MISER) Model: A Computer Program to Model Soil Vapor Extraction and Bioventing of Organic Chemicals in Unsaturated Geological Material
EPA 600-R-97-009

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EPA 542-R-97-009 ▲

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Review of Mathematical Modeling For Evaluating Soil Vapor Extraction Systems
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Unterdruck-Verdampfer-Brunnen Technology (UVB) Vacuum Vaporizing Well
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G1. General

Molecular Bonding System for Heavy Metals Stabilization, Solucorp Industries Ltd.: Demonstration Bulletin
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Project Summary **EPA 540-SR-93-515** ✲

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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) ▲

A Citizen's Guide to Treatment Walls
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EPA 540-R-96-503 ✲
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Ambersorb 563 Adsorbent, Roy F. Weston, Inc.: Emerging Technology Report
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Emerging Technology Bulletin **EPA 540-F-95-516** ✲
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EPA 540-R-94-522, PB95-268041 ✲
Demonstration Bulletin **EPA 540-MR-522** ✲
Site Technology Capsule **EPA 540-R-94-522A, PB95-213229** ✲

In Situ Vitrification, Geosafe Corporation: Innovative Technology Evaluation Report
EPA 540-R-94-520, PB95-213245 ✲
Demonstration Bulletin **EPA 540-MR-520** ✲

In Situ Vitrification Treatment: Engineering Bulletin
EPA 540-S-94-504, PB95-125499

Physical/Chemical Treatment Technology Resource Guide
EPA 542-B-94-008, PB95-138665 ▲

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

Biogenesis Soil Washing Technology: Innovative Technology Evaluation Report
EPA 540-R-93-510 ✲
Demonstration Bulletin **EPA 540-MR-93-510 ✲**
Site Technology Capsule **EPA 540-SR-93-510 ✲**

G3. Solvent Extraction

A Citizen's Guide to Solvent Extraction
EPA 542-F-96-003; EPA 542-F-96-019 (Spanish) ▲

Removal of PCBs From Contaminated Soil Using The CF Systems (trade name) Solvent Extraction Process: A Treatability Study
EPA 540-R-95-505, PB95-199030
Project Summary **EPA 540-SR-95-505**

Solvent Extraction: Engineering Bulletin
EPA 540-S-94-503, PB94-190477

Solvent Extraction Treatment System, Terra-Kleen Response Group, Inc.: Site Technology Capsule
EPA 540-R-94-521A, PB95- 213617

H. Site Characterization

Characterization of Organic Matter in Soil and Aquifer Solids: Environmental Research Brief
EPA 600-S-97-001

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

Expedited Site Assessment Tools For Underground Storage Tank Cleanups
EPA 510-B-97-001, S/N 055-000-00564-8 (GPO) ✲w§

Field Analytical and Site Characterization Technologies: Summary of Applications
EPA 542-R-97-011 ▲

Field Portable Gas Chromatograph/Mass Spectrometer, Viking Instruments Corporation SpectraTrak™ 672: Environmental Verification Report
EPA 600-R-97-148 ⊕

Field Portable Gas Chromatograph/Mass Spectrometer, Bruker-Franzen Analytical Systems, Inc. EM640™ : Environmental Verification Report
EPA 600-R-97-149 ⊕

Field Sampling and Selecting On-Site Analytical Methods for Explosives in Soil: Federal Facilities Forum Issue Paper
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 ▲

Hydrogeologic Characterization of Fractured Rock Formations: A Guide for Groundwater Remediators: Project Summary
EPA 600-S-96-001 Ωw

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

Chlor-N-Soil PCB Test Kit L2000 PCB/Chloride Analyzer: Innovative Technology Evaluation Report
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 ▲
Demonstration Bulletin **EPA 540-MR-95-521** ▲

Field Analytical Screening Program, PCP Method: Innovative Technology Evaluation Report
EPA 540-R-95-528 ▲
Demonstration Bulletin **EPA 540-MR-95-528** ▲

HNU-Hanby PCP Immunoassay Test Kit
EPA 540-R-95-515 ▲
Demonstration Bulletin **EPA 540-MR-95-515** ▲

PCP Immunoassay Technologies: Innovative Technology Evaluation Report
EPA 540-R-95-514 ▲
Demonstration Bulletin **EPA 540-MR-95-514** ▲

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
EPA 542-B-96-001 ▲

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

L. Electronic Resources: Web Sites/ Databases/Software/Listservers

EPA's TIO Web Site and Electronic Bulletin Board (BBS): Clean-Up Information (CLU-IN). See page 13 for details.

Environmental Technology Verification (ETV) Web site: See page 15 for details.

Ground-Water Remediation Technologies Analysis Center (GWRTAC) Web site: See page 15 for details.

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 Information System For Innovative Treatment Technologies (VISITT): A Windows-based system containing information on 325 innovative remediation technologies offered by 204 vendors. The system requries 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 page one for web addresses

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 also individual technology sections

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.

United States
Environmental Protection Agency

Office of Solid Waste
and Emergency Response

Technology Innovation Office
Walter W. Kovalick, Jr., Ph.D., Director

CLU-IN
CLEAN-UP INFORMATION SYSTEM
World Wide Web Site and Electronic Bulletin Board

Internet Access

WWW site:	http://clu-in.com
FTP site:	ftp://clu-in.com
Telnet to BBS:	telnet://clu-in.epa.gov (or 134.67.99.13)

Modem Access

BBS modem number:	301-589-8366
Modem speed:	Up to 28,800 baud
Communications parameters:	8 data bits, 1 stop bit, no parity
Terminal emulation:	VT-100 or ANSI

Voice Help Line

Telephone number:	(301) 589-8368

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.

United States
Environmental Protection
Agency

Solid Waste and
Emergency Response
(5102G)

EPA 542-F-97-004
March 1997

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**
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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.

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

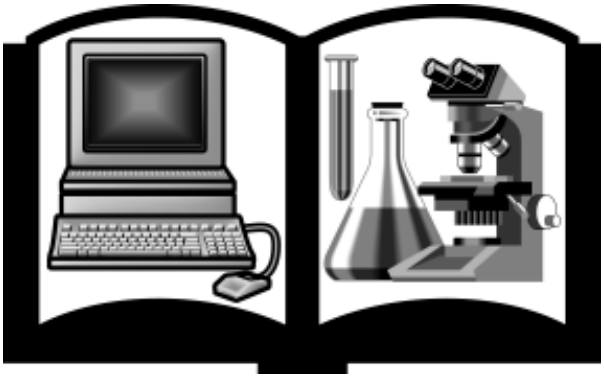
Ground-Water Remediation Technologies Analysis Center

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.

Bibliography for Innovative Site Clean-Up Technologies

March 1998 Update



United States Environmental Protection Agency
(5102G)
Washington, DC 20460

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$300

EPA 542-B-98-001

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