EPA-542-F-95-003
March 1995

FEDERAL REMEDIATION TECHNOLOGIES ROUNDTABLE

Remediation Case Studies: Fact Sheet and Order Form

Introduction

Increasing the cost-effectiveness of site remediation is a national priority. The selection and use of more cost-effective remedies requires better access to data on the performance and cost of technologies used in the field. To make data more widely available, member agencies of the Federal Remediation Technologies Roundtable are working jointly to publish case studies of full-scale remediation and demonstration projects. The Roundtable has published 37 case study reports organized by technology into a four-document set; a collection of abstracts is also available. Future case studies will be based on an important new Roundtable Guide for documenting future site cleanups.

Contents of Case Study Reports

The 37 case study reports prepared by the Federal agencies describe both above-ground and in situ technologies. Twenty-two of the projects are completed. Case studies are available in four separate volumes:

Remediation Case Studies: Bioremediation
Remediation Case Studies: Groundwater Treatment
Remediation Case Studies: Soil Vapor Extraction
Remediation Case Studies: Thermal Desorption, Soil Washing, and In Situ Vitrification

Exhibit 1 lists the case studies contained in each report, with the contaminants and matrix addressed, the quantity or volume of material treated, and the duration of the project. Each case study is 10-30 pages long and documents project design, operation, performance, cost, and lessons learned. Graphics include concentration distribution, site stratigraphy, and treatment schematics.

Abstracts of Remediation Case Studies

This document contains 2-page abstracts of all 37 cleanup case study reports. Each abstract describes the site and waste treated, waste source, technology, period of operation, technology vendor, technology description, contaminants and media treated, regulatory requirements, summary of performance and cost, points of contact, and the significance of the application.

Guide to Documenting Cost and Performance for Remediation Projects

The Roundtable has prepared this Guide to better capture Federal agency cleanup experience. The Guide provides recommended procedures for documenting the matrix characteristics and technology operation, performance, and cost. Recommendations include specific parameters to measure and report for the following 13 conventional and innovative cleanup technologies:

In Situ Soil Remediation
Soil Bioventing
Soil Flushing
Soil Vapor Extraction
Groundwater Remediation
Groundwater Sparging
In Situ Groundwater Bioremediation
Pump-and-Treat

Ex Situ Soil Remediation
Composting
Incineration
Land Treatment
Slurry-Phase Soil Bioremediation
Soil Washing
Stabilization
Thermal Desorption

Order Information

Abstracts of Remediation Case Studies and *Guide to Documenting Cost and Performance for Remediation Projects* are available free-of-charge from the U.S. EPA/National Center for Environmental Publications and Information (NCEPI), P.O. Box 42419, Cincinnati, OH 45242, or FAX requests to (513) 489-8695. The four *Remediation Case Study* documents are available from the National Technical Information Services (NTIS) at (703) 487-4650. Prices and additional ordering instructions are on the last page of this fact sheet.

On-Line Access

The case study abstracts are available on-line through EPA's Cleanup Information Bulletin Board System (CLU-IN). To access CLU-IN by modem, call (301) 589-8366, or to contact the CLU-IN help desk, call (301) 589-8368. CLU-IN is available on the Internet; the telnet address is clu-in.epa.gov or 134.67.99.13.

The Federal Remediation Technologies Roundtable consists of senior executives from eight agencies with an interest in site remediation technology. The Roundtable meets twice each year to coordinate the exchange of information on remediation technologies and to consider cooperative efforts. Primary members include the U.S. Departments of Defense, Energy, and Interior, and the U.S. Environmental Protection Agency. Other participants include the Nuclear Regulatory Commission, National Aeronautics and Space Administration, Tennessee Valley Authority, and the U.S. Coast Guard.

Exhibit 1. Summary of Remediation Case Studies

Site Name, State	Technology	Contaminants	Media (Quantity)	Project Duration
Remediation Case Studies: Bioremediation				
Brown Wood Preserving Superfund Site, FL	Land treatment	PAHs	Soil (8,100 yd^3)	12/89 - 7/90
Eielson Air Force Base, AK	Bioventing	BTEX/TPH	Soil (not available)	Operational since 7/91
French Ltd. Superfund Site, TX	Slurry-phase bioremediation	BTEX, PAHs, and Chlorinated Aliphatics	Soil and sludge (300,000 tons)	1/92 - 11/93
Hill Air Force Base, Site 280, UT	Bioventing	BTEX/TPH	Soil (not available)	Operational since 12/90
Hill Air Force Base, Site 914, UT*	Bioventing preceded by SVE	BTEX/TPH	Soil (5,000 yd^3)	10/88 - 12/90
Lowry Air Force Base, CO	Bioventing	BTEX/TPH	Soil (not available)	Operational since 8/92
Lowry Air Force Base, CO	Land treatment	BTEX/TPH	Soil (not available)	Operational since 7/92
Scott Lumber Company Superfund Site, MO	Land treatment	PAHs	Soil (15,916 tons)	12/89 - 9/91
Umatilla Army Depot Activity, OR	Composting	TNT/RDX/HMX	Soil (224 yd^3)	5/92 - 11/92
Remediation Case Studies: Groundwater Treatment				
Amcor Precast, UT	In situ density-driven sparging	BTEX/TPH	Soil (not available) Groundwater (not available)	3/92 - 9/93
Amoco Petroleum Pipeline, MI	GW extraction w/GAC	BTEX/TPH	Groundwater (775 million gallons in 5 years)	Operational since 10/88
Ft. Drum, Fuel Dispensing Area 1595, NY	GW extraction w/air stripping and GAC	BTEX/TPH	Groundwater (not available)	Operational since 2/92
Langley Air Force Base, IRP Site 4, VA	GW extraction w/air stripping	BTEX/TPH	Groundwater (not available)	Operational since 7/92
Lawrence Livermore National Laboratory Gasoline Spill Site, CA	In situ dynamic underground stripping	BTEX/TPH	Groundwater (not available)	11/92 - 12/93
McClellan Air Force Base, Operable Unit B/C, CA	GW extraction w/air stripping	Chlorinated Aliphatics	Groundwater (660 million gallons in 7 years)	Operational since 1988
McClellan Air Force Base, Operable Unit D, CA	GW extraction w/air stripping	Chlorinated Aliphatics	Groundwater (not available)	Operational since 1987
Twin Cities Army Ammunition Plant, MN	GW extraction w/air stripping	Chlorinated Aliphatics	Groundwater (1.4 billion gallons 10/91 - 9/92)	Operational since 10/87
U.S. Department of Energy Kansas City Plant, MO	GW extraction w/advanced oxidation processes	Chlorinated Aliphatics	Groundwater (11.2 million gallons in 1993)	Operational since 5/88
U.S. Department of Energy Savannah River Site, A/M Area, SC	GW extraction w/air stripping	Chlorinated Aliphatics	Groundwater (198 million gallons per year)	Operational since 9/85
U.S. Department of Energy Savannah River Site, A/M Area, SC	In situ air stripping	Chlorinated Aliphatics	Groundwater (not available) Soil (not available)	Operational since 7/90

Site Name, State	Technology	Contaminants	Media (Quantity)	Project Duration
Remediation Case Studies: Soil Vapor Extraction				
Commencement Bay, South Tacoma Channel Well 12A Superfund Site, WA	SVE w/product recovery	Chlorinated Aliphatics	Soil (98,203 yd^3)	Operational since 8/92
Fairchild Semiconductor Corporation Superfund Site, CA	SVE w/GAC	Chlorinated Aliphatics	Soil (42,000 yd^3)	1/89 - 4/90
Hastings Groundwater Contamination Superfund Site, Well Number 3 Subsite, NE	SVE w/GAC	Chlorinated Aliphatics	Soil (185,000 yd^3)	6/92 - 7/93
Hill Air Force Base, Site 914, UT*	SVE w/catalytic oxidation followed by bioventing	BTEX/TPH	Soil (5,000 yd^3)	10/88 - 12/90
Luke Air Force Base, North Fire Training Area, AZ	SVE w/thermal oxidizer	BTEX/TPH	Soil (not available)	10/90 - 12/92
McClellan Air Force Base, Operable Unit D, Site S, CA	SVE w/catalytic oxidizer and scrubber	Chlorinated Aliphatics	Soil (not available)	Operational since 1993
Rocky Mountain Arsenal Superfund Site (Motor Pool Area - Operable Unit #18), CO	SVE w/product recovery and GAC	Chlorinated Aliphatics	Soil (34,000 yd^3)	7/91 - 12/91
Sacramento Army Depot Superfund Site, Tank 2 (Operable Unit #3), CA	SVE w/GAC	Chlorinated and Non-chlorinated Aliphatics	Soil (650 yd^3)	8/92 - 1/93
SMS Instruments Superfund Site, NY	SVE w/catalytic incineration and scrubbing	Chlorinated and Non-chlorinated Aliphatics	Soil (1,250 yd^3)	5/92 - 10/93
Verona Well Field Superfund Site (Thomas Solvent Raymond Road - Operable Unit #1), MI	SVE w/catalytic oxidation and GAC	Chlorinated and Non-chlorinated Aliphatics	Soil (26,700 yd^3)	3/88 - 5/92
Remediation Case Studies: Thermal Desorption, Soil Washing, and In Situ Vitrification				
Anderson Development Company Superfund Site, MI	Thermal desorption	MBOCA and PAHs	Soil (5,100 tons)	1/92 - 6/93
King of Prussia Technical Corporation Superfund Site, NJ	Soil washing	Heavy Metals (Cr, Cu, Ni)	Soil and sludge (19,200 tons)	6/93 - 10/93
McKin Superfund Site, ME	Thermal desorption	BTEX/PAHs	Soil (11,500 yd^3)	7/86 - 4/87
Outboard Marine Corporation Superfund Site, OH	Thermal desorption	PCBs	Soil and sediment (12,755 tons)	1/92 - 6/92
Parsons Chemical/ETM Enterprises Superfund Site, MI	In situ vitrification	Pesticides, Heavy Metals, and Dioxins	Soil (3,000 yd^3)	5/93 - 5/94
Pristine, Inc. Superfund Site, OH	Thermal desorption	BTEX, PAHs, Pesticides, Dioxins, and Chlorinated Aliphatics	Soil (12,800 tons)	11/93 - 3/94
T H Agricuiture & Nutrition Company Superfund Site, GA	Thermal desorption	Pesticides	Soil (4,300 tons)	7/93 - 10/93
Wide Beach Development Superfund Site, NY	Thermal desorption w/dehalogenation	PCBs	Soil (42,000 tons)	10/90 - 9/91

*One case study report on both bioventing and SVE at Hill Air Force Base, Site 914.

Key:

GW - Groundwater
GAC - Granular Activated Carbon
SVE - Soil Vapor Extraction
BTEX - Benzene, Toluene, Ethylbenzene, and Xylene
TPH - Total Petroleum Hydrocarbons
PAHs - Polynuclear Aromatic Hydrocarbons
PCBs - Polychlorinated Biphenyls
TNT - 2,4,6-Trinitrotoluene
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
HMX - Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine

Ordering Instructions

The following documents are available free-of-charge from the U.S. EPA/National Center for Environmental Publications and Information (NCEPI). To order, mail or fax the completed form below to: U.S. EPA/National Center for Environmental Publications and Information, P.O. Box 42419, Cincinnati, OH 45242, or FAX requests to (513) 489-8695.

Title	Number	Price	Please Send
Abstracts of Remediation Case Studies [106pp]	EPA-542-R-95-001	Free	_____
Guide to Documenting Cost and Performance for Remediation Projects [64pp]	EPA-542-B-95-002	Free	_____

Name _____ Date _____

Organization _____

Address _____

_____

City/State/Zip _____ Telephone _____

Internet Address _____

The following documents are available by calling the National Technical Information Service (NTIS) at 703-487-4650 or writing them at: National Technical Information Service (NTIS) 5285 Port Royal Road, Springfield, VA 22161

Title	Number	Price*
Remediation Case Studies: Bioremediation	PB95-182911	$17.50
Remediation Case Studies: Groundwater Treatment	PB95-182929	$17.50
Remediation Case Studies: Soil Vapor Extraction	PB95-182937	$25.50
Remediation Case Studies: Thermal Desorption, Soil Washing, and In Situ Vitrification	PB95-182945	$17.50
Remediation Case Studies: Four Document Set	PB95-182903	$67.00

Other Federal Remediation Technology Roundtable (FRTR) documents available from NTIS:

Title	Number	Price*
Accessing Federal Databases for Contaminated Site Clean-Up Technologies (3rd Edition)	PB94-144540	$17.50
Federal Publications on Alternative and Innovative Treatment Technologies for Corrective Action and Site Remediation (3rd Edition)	PB94-144557	$17.50
Synopses of Federal Demonstrations of Innovative Site Remediation Technologies (3rd Edition)	PB94-144565	$44.50
Remediation Technologies Screening Matrix and Reference Guide (2nd Edition)	PB95-104782	$45.00

* Additional fee for shipping and handling; next day delivery also available. Major credit cards accepted.