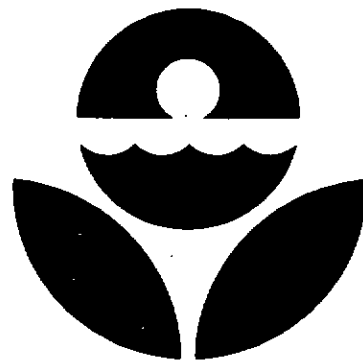


EPA/540/2-91/001

***FIRST ISSUE***

**INNOVATIVE TREATMENT TECHNOLOGIES:  
SEMI-ANNUAL STATUS REPORT**

**January, 1991**



U.S. Environmental Protection Agency  
Office of Solid Waste and Emergency Response  
Technology Innovation Office

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Foreword . . . . .	i
Abbreviations . . . . .	iv
1.0 EPA Regional Summary For Innovative Technologies . . . . .	1
2.0 Project Status Summary by Innovative Technology . . . . .	4
3.0 Detailed Site Information by Innovative Technology . . . . .	7
Bioremediation . . . . .	8
Chemical Extraction . . . . .	11
Chemical Treatment . . . . .	12
In situ Soil Flushing . . . . .	13
In situ Vitrification . . . . .	15
Soil Washing . . . . .	16
Thermal Desorption . . . . .	17
Vacuum Extraction . . . . .	19
Appendix A: Document Request Form . . . . .	23

## FOREWORD

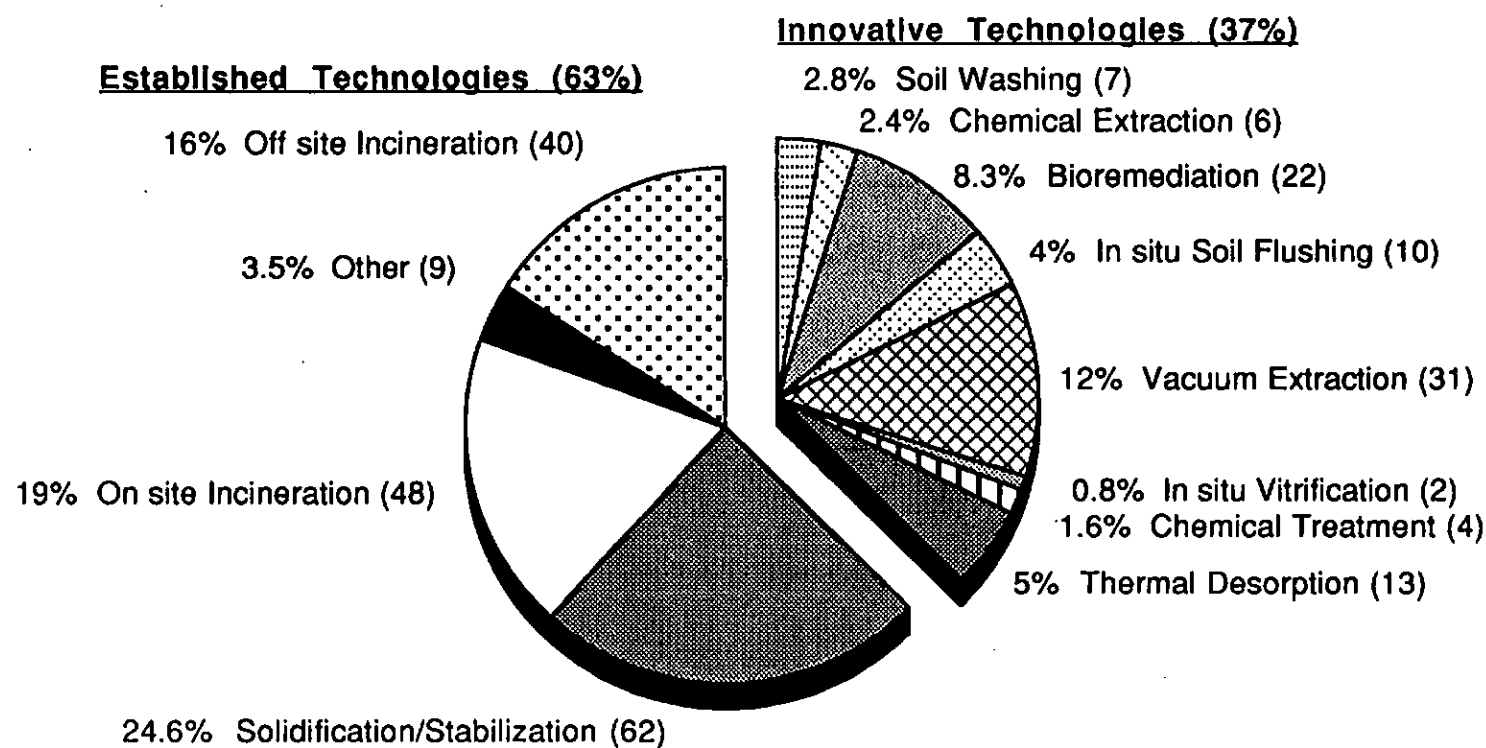
The Technology Innovation Office (TIO) was established in April 1990 by the U.S. EPA's Office of Solid Waste and Emergency Response to promote the use of innovative treatment technologies for contaminated site cleanup. TIO believes that an important part of this mission is to inform technology vendors and EPA Superfund site managers of sites at which innovative technologies are being successfully used. Accordingly, TIO has developed this document, "Innovative Treatment Technologies: Semi-Annual Status Report," to provide information on specific sites that have selected or used innovative treatment technologies. The information serves several purposes: (1) to track the progress of innovative technology use; (2) to provide market information to technology vendors; and (3) to facilitate communication among innovative technology users.

This report will be updated and distributed biannually. This first issue of the report addresses National Priorities List (NPL) sites where innovative technologies are planned for use or are being used. Data initially derived from Records of Decision (RODs) signed through Fiscal Year 1989 (FY89) have been updated with design and implementation information through telephone interviews with remedial project managers (RPMs). The data pertaining to project status does not duplicate data in CERCLIS, EPA's Superfund tracking system. This report provides more detailed information pertaining specifically to the implementation of various innovative technologies. The next biannual report (planned for July 1991) will contain information on innovative technologies selected in FY90 RODs, ongoing and completed removal actions utilizing innovative technologies, and project updates. Future reports may be expanded to include innovative treatment technologies used outside of Superfund.

This report is comprised of three sections. Section 1 provides a summary of innovative technology use by EPA Regions; Section 2 provides a project status summary of innovative technologies; and Section 3 provides more detailed site specific information for each technology. Figure 1 on the following page contrasts Superfund selection and use of innovative versus established treatment technologies for source control. This status report focuses on the innovative treatment technologies identified in this figure. Figure 2 provides a tabular summary of project status information contained in Section 2 of the report.

Questions pertaining to individual sites may be directed to the contacts listed in the table. Changes and updates to the report contents may be made to Mr. David Pepson, PRC Environmental Management, Inc., (PRC) at (703) 883-8802 or faxed to (703) 556-1130. General comments on the usefulness and scope of this report may be provided in writing to Ms. Linda Fiedler, USEPA, OS-110, 401 M Street, SW, Washington, DC 20460, or faxed to (202) 382-7863. To get on the mailing list for this document, complete and mail the form at the end of this document or call Ms. Deborah Lyne, PRC, at (703) 883-8408. To receive additional copies of this report, call EPA/ORD Publications at (513) 569-7562.

# Figure 1 Summary of Innovative vs. Established Treatment Technologies For Source Control at Superfund Sites\*



\* Data are derived from 1982 - 1989 Records of Decision (RODs) and anticipated design and construction activities. The 254 technologies are associated with approximately 211 sites; the difference reflects the use of more than one technology per site.  
( ) Number of times this technology was selected or used.

## Figure 2

### Project Status of Innovative Treatment Technologies For Source Control at Superfund Sites\*

Technology	Predesign / In Design	Being Installed/ Operational	Project Completed	Total
Vacuum Extraction	25	5	1	31
Bioremediation	16	5	1	22
In Situ Soil Flushing	8	2	0	10
Thermal Desorption	10	0	3	13
Soil Washing	7	0	0	7
Chemical Extraction	5	1	0	6
Chemical Treatment	2	1	1	4
In Situ Vitrification	2	0	0	2

\* Data derived from 1982 - 1989 Records of Decision (RODs) and anticipated design and construction activities.

**Abbreviations**

BTEX	benzene, toluene, ethylbenzene, and xylene
BTX	benzene, toluene, and xylene
cy	cubic yards
DCA	dichloroethane
DCE	dichloroethylene
FY	fiscal year
gw	ground water
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	perchloroethylene or tetrachloroethylene
PCP	pentachlorophenol
PRP	potentially responsible party
RODs	Records of Decision
RSKERL	Robert S. Kerr Environmental Research Laboratory, Ada, OK (U.S. EPA)
SVOCs	semivolatile organic compounds
TCA	trichloroethane
TCE	trichloroethylene
VOCs	volatile organic compounds

January, 1991

## SECTION 1.0

### EPA REGIONAL SUMMARY FOR INNOVATIVE TECHNOLOGIES

This section contains a table summarizing the innovative treatment technologies used at NPL sites in each EPA region. As shown in this table, regional use of innovative technologies ranges from 2 to 19 sites. Five of the regions are using innovative technologies at 10 or more sites.

TABLE 1  
EPA REGIONAL SUMMARY FOR INNOVATIVE TECHNOLOGIES

TECHNOLOGY	SITE NAME	STATE	TECHNOLOGY	SITE NAME	STATE	TECHNOLOGY	SITE NAME	STATE
<u>Region 1</u>			<u>Region 2 (continued)</u>			<u>Region 4</u>		
Vacuum Extraction	Kellogg-Deering Well Field	CT	Thermal Desorption	Metaltec/Aerosystems	NJ	Bioremediation	American Creosote Works (Pensacola)	FL
Bioremediation	Iron Horse Park	MA	Thermal Desorption	Reich Farms	NJ	Bioremediation	Brown Wood Preserving	FL
Chemical Extraction	Norwood PCBs	MA	Thermal Desorption	Waldick Aerospace Devices	NJ	Soil Washing	Cape Fear Wood Preserving	NC
Chemical Treatment	Re-Solve	MA	6 Vacuum Extraction	FAA Technical Center	NJ	Chemical Treatment	Palmetto Wood Preserving	SC
Thermal Desorption	Cannon Engineering/Plymouth	MA	Chemical Treatment	Wide Beach Development	NY	Thermal Desorption	Wanchem	SC
Thermal Desorption	Re-Solve	MA	In situ Soil Flushing	Byron Barrel & Drum	NY			
Vacuum Extraction	Groveland Wells	MA	Thermal Desorption	Fulton Terminals	NY			
Vacuum Extraction	Wells G&H	MA	Thermal Desorption	Marathon Battery	NY			
Chemical Extraction	O'Connor	ME	Thermal Desorption	SMS Instruments (Deer Park)	NY	1 Bioremediation	Galesburg/Koppers	IL
Chemical Extraction	Pinette's Salvage Yard	ME	Chemical Extraction	GE Wiring Devices	PR	2 Thermal Desorption	Outboard Marine/Waukegan Harbor	IL
Thermal Desorption	McKin	ME	Vacuum Extraction	Upjohn Manufacturing Co.	PR	Bioremediation	Seymour Recycling	IN
Thermal Desorption	Ottati & Goss	NH				3 Insitu Soil Flushing	Ninth Avenue Dump	IN
Vacuum Extraction	South Municipal Water Supply Well	NH				4 Vacuum Extraction	MIDCO I	IN
Vacuum Extraction	Tinkham Garage	NH				Vacuum Extraction	Seymour Recycling	IN
						Bioremediation	Cliff/Dow Dump	MI
						In situ Soil Flushing	U.S. Aviex	MI
						5 In situ Vitrification	Ionia City Landfill	MI
1 Bioremediation	FAA Technical Center	NJ	1 In situ Soil Flushing	Harvey-Knott Drum	DE	Vacuum Extraction	Kysor Industrial	MI
2 Chemical Extraction	Ewan Property	NJ	2 Vacuum Extraction	Bendix	PA	Vacuum Extraction	Verona Well Field	MI
3 In situ Soil Flushing	Goose Farm	NJ	Vacuum Extraction	Henderson Road	PA	Bioremediation	Burlington Northern (Railroad Tie Treating Plant)	MN
In situ Soil Flushing	Lipari Landfill	NJ	3 Bioremediation	Tyson's Dump	PA	Bioremediation	Joslyn Manufacturing & Supply Co.	MN
In situ Soil Flushing	Vineland Chemical	NJ	4 In situ Soil Flushing	L.A. Clarke & Sons	VA	Vacuum Extraction	Long Prairie	MN
4 Soil Washing	Ewan Property	NJ	Bioremediation	L.A. Clarke & Sons	VA	Soil Washing	United Scrap Lead/SIA	OH
Soil Washing	Vineland Chemical	NJ	Bioremediation	Leetown Pesticide	WV			
5 Thermal Desorption	Caldwell Trucking	NJ	Bioremediation	Ordnance Works Disposal	WV			



TABLE 1 (Continued)  
EPA REGIONAL SUMMARY FOR INNOVATIVE TECHNOLOGIES

<u>TECHNOLOGY</u>	<u>SITE NAME</u>	<u>STATE</u>	<u>TECHNOLOGY</u>	<u>SITE NAME</u>	<u>STATE</u>
<u>Region 5 (continued)</u>			<u>Region 8</u>		
Vacuum Extraction	Miami County Incinerator	OH	Vacuum Extraction	Sand Creek Industrial	CO
Vacuum Extraction	Pristine	OH	Bioremediation	Burlington Northern (Somers Plant)	MT
Vacuum Extraction	Wausau Groundwater Contamination	WI	Bioremediation	Libby Ground Water Contamination	MT
<u>Region 6</u>			<u>Region 9</u>		
1 Bioremediation	Old Inger Oil Refinery	LA	1 Vacuum Extraction	Motorola 52nd Street	AZ
Bioremediation	AT&SF/Clovis	NM	Vacuum Extraction	Phoenix-Goodyear Airport Area	AZ
2 Vacuum Extraction	South Valley/Edmunds	NM	2 Bioremediation	Koppers (Oroville Plant)	CA
Bioremediation	French Limited	TX	3 Soil Washing	Koppers (Oroville Plant)	CA
Bioremediation	North Cavalcade Street	TX	Vacuum Extraction	Fairchild/Intel FY89	CA
Bioremediation	Sheridan Disposal Services	TX	Vacuum Extraction	Fairchild/Raytheon	CA
3 Chemical Extraction	United Creosoting	TX	Vacuum Extraction	Fairchild Semiconductor/MTV-I	CA
4 Chemical Treatment	Sol Lynn/Industrial Transformers	TX	Vacuum Extraction	Fairchild Semiconductor/MTV-II	CA
5 In situ Soil Flushing	South Cavalcade Street	TX	Vacuum Extraction	Fairchild Semiconductor (San Jose)	CA
6 Soil Washing	Koppers/Texarkana	TX	Vacuum Extraction	IBM (San Jose)	CA
Soil Washing	South Cavalcade Street	TX			
<u>Region 7</u>			<u>Region 10</u>		
1 Bioremediation	Vogel Paint & Wax	IA	In situ Soil Flushing	United Chrome Products	OR
2 Vacuum Extraction	Hastings Groundwater* Contamination	NE	In situ Vitrification	Northwest Transformer (Mission Pole)	WA
Vacuum Extraction	Hastings Groundwater* Contamination	NE			
Vacuum Extraction	Hastings Groundwater* Contamination	NE			

\* Different operable units at the same site.

**SECTION 2.0**

**PROJECT STATUS SUMMARY BY INNOVATIVE TECHNOLOGY**

This section contains a table summarizing the implementation status of innovative technologies selected or used at NPL sites. At six sites cleanup work using innovative technologies has been completed, and at an additional nine sites the technologies are operational. For two technologies (chemical extraction and soil washing), work has only progressed to the design stage.

TABLE 2  
PROJECT STATUS SUMMARY BY INNOVATIVE TECHNOLOGY\*

<u>BIOREMEDIATION</u>	<u>STATUS</u>	<u>CHEMICAL EXTRACTION</u>	<u>STATUS</u>	<u>IN SITU VITRIFICATION</u>	<u>STATUS</u>
Iron Horse Park, 01, MA	D	Norwood PCBs, 01, MA	D	Ionia City Landfill, 05, MI	D
FAA Technical Center, 02, NJ	D	O'Connor, 01, ME	D	Northwest Transformer, 10, WA (Mission Pole)	D
L.A. Clarke & Sons, 03, VA	D	Pinette's Salvage Yard, 01, ME	D		
Leetown Pesticide, 03, WV	D	Ewan Property, 02, NJ	PD	<u>SOIL WASHING</u>	
Ordnance Works Disposal, 03, WV	D	GE Wiring Devices, 02, PR	PD	Ewan Property, 02, NJ	PD
American Creosote Works, 04, FL (Pensacola)	D	United Creosoting, 06, TX	D	Vineland Chemical, 02, NJ	PD
Brown Wood Preserving, 04, FL	O			Cape Fear Wood Preserving, 04, NC	D
Burlington Northern, 05, MN (Railroad Tie Treating Plant)	O	<u>CHEMICAL TREATMENT</u>		United Scrap Lead/SIA, 05, OH	D
Cliff/Dow Dump, 05, MI	PD	Re-Solve, 01, MA	D	Koppers/Texarkana, 06, TX	D
Galesburg/Koppers, 05, IL	PD	Wide Beach Development, 02, NY	O	South Cavalcade Street, 06, TX	D
Joslyn Manufacturing, 05, MN and Supply Company	O	Palmetto Wood Preserving, 04, SC	C	Koppers (Oroville Plant), 09, CA	D
Seymour Recycling, 05, IN	C	Sol Lynn/Industrial, 06, TX Transformers	D		
AT&SF/Clovis, 06, NM	I			<u>THERMAL DESORPTION</u>	
French Limited, 06, TX	D	<u>IN SITU SOIL FLUSHING</u>		Cannon, 01, MA Engineering/Plymouth	C
North Cavalcade Street, 06, TX	D	Byron Barrel & Drum, 02, NY	D	McKin, 01, ME	C
Old Inger Oil Refinery, 06, LA	I	Goose Farm, 02, NJ	D	Ottati & Goss, 01, NH	C
Sheridan Disposal, 06, TX Services	D	Lipari Landfill, 02, NJ	O	Re-Solve, 01, MA	D
Vogel Paint & Wax, 07, IA	D	Vineland Chemical, 02, NJ	PD	Caldwell Trucking, 02, NJ	D
Burlington Northern, 08, MT (Somers Plant)	D	Harvey-Knott Drum, 03, DE	D	Fulton Terminals, 02, NY	PD
Libby Ground Water, 08, MT Contamination	D	L.A. Clarke & Sons, 03, VA	D	Marathon Battery, 02, NY	PD
Koppers (Oroville Plant), 09, CA	D	Ninth Avenue Dump, 05, IN	D	Metaltec/Aerosystems, 02, NJ	D
		U.S. Aviex, 05, MI	D	Reich Farms, 02, NJ	D
		South Cavalcade Street, 06, TX	D	SMS Instruments, 02, NY (Deer Park)	D
		United Chrome Products, 10, OR	O	Waldick Aerospace Devices, 02, NJ	D

\* Number following site name refers to the EPA Region.  
C = Completed, D = In Design, I = Being Installed, O = Operational, PD = Pre-design

TABLE 2 (Continued)  
PROJECT STATUS SUMMARY BY INNOVATIVE TECHNOLOGY\*

January, 1991

<u>THERMAL DESORPTION (Continued)</u>	<u>STATUS</u>	<u>VACUUM EXTRACTION (Continued)</u>	<u>STATUS</u>
Wanchem, 04, SC	D	Wausau Groundwater, 05, WI Contamination	D
Outboard Marine/Waukegan, 05, IL Harbor	D	South Valley/Edmunds, 06, NM	D
		Hastings Groundwater, 07, NE Contamination	D
<u>VACUUM EXTRACTION</u>		Hastings Groundwater, 07, NE Contamination	D
Groveland Wells, 01, MA	D	Hastings Groundwater, 07, NE Contamination	D
Kellogg-Deering Well, 01, CT Field	D	Hastings Groundwater, 07, NE Contamination	D
South Municipal Water, 01, NH Supply Well	D	Sand Creek Industrial, 08, CO	D
Tinkham Garage, 01, NH	D	Fairchild Semiconductor, 09, CA (San Jose)	O
Wells G&H, 01, MA	D	Fairchild, 09, CA Semiconductor/MTV-I	PD
FAA Technical Center, 02, NJ	D	Fairchild, 09, CA Semiconductor/MTV-II	PD
Upjohn Manufacturing Co., 02, PR	C	Fairchild/Intel, 09, CA	PD
Bendix, 03, PA	D	Fairchild/Raytheon, 09, CA	PD
Henderson Road, 03, PA	PD	IBM (San Jose), 09, CA	I
Tyson's Dump, 03, PA	O	Motorola 52nd Street, 09, AZ	D
Kysor Industrial, 05, MI	D	Phoenix-Goodyear Airport, 09, AZ Area	D
Long Prairie, 05, MN	D		
MIDCO I, 05, IN	D		
Miami County Incinerator, 05, OH	PD		
Pristine, 05, OH	PD		
Seymour Recycling, 05, IN	I		
Verona Well Field, 05, MI	O		

\* Number following site name refers to the EPA Region.  
C = Completed, D = In Design, I = Being Installed, O = Operational, PD = Pre-design

**SECTION 3.0**

**DETAILED SITE INFORMATION  
BY INNOVATIVE TECHNOLOGY**

This section contains a table that provides detailed project information for each innovative treatment technology. The table includes information on the specific technology, site category, media, key contaminants, lead treatment contractor, and contact names and phone numbers. Also provided are dates for Records of Decision (RODs). The technologies and sites are listed in the same order as in Table 2.0.

TABLE 3  
DETAILED SITE INFORMATION BY TECHNOLOGY

January, 1991

Bioremediation

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Iron Horse Park, MA, 01 (09/15/88)	Land Treatment	Industrial Complex & Railyard Wastes	Sludge, Soil (28,000 cy combined)	Petroleum Hydrocarbons, BTEX, and PAHs	In Design	PRP Lead; ENSR	Don McElroy 617-223-5518 FTS 883-1518
FAA Technical Center, NJ - Area D, 02 (09/26/89) Also see Vacuum Extraction	In situ gw Bioremediation	Jet Fuel Farm	gw	BTX, PAHs (Naphthalene), and Phenols	In Design	PRP Lead	Carla Struble 212-264-4595 FTS 264-4595 Keith Buch (FAA) 609-484-6644
L.A. Clarke & Sons, VA, 03 (03/31/88) Also see In situ Soil Flushing	On-site Bioremediation - Type to be Determined	Wood Preserving	Soil (73,700 cy), Sediments (45,300 cy)	Creosote, PAHs, and Benzene	In Design	PRP Lead	Gene Wingert 215-597-1727 FTS 597-1727
Leetown Pesticide, WV, 03 (03/31/86)	On-site Bioremediation - Type to be Determined	Pesticide Storage and Disposal	Soil (3,600 cy)	DDT and Lindane	In Design; Treatability studies unsuccessful; reevaluating remedial action	Fund Lead	Andy Polestini 215-597-1286 FTS 597-1286
Ordnance Works Disposal, WV, 03 (09/29/89)	Land Treatment	Chemical Formulation	Soil (13,460 cy)	PAHs	In Design	PRP Lead	Bonnie Gross 215-597-9023 FTS 597-9023
American Creosote Works, Pensacola, FL, 04, (09/28/89)	Slurry Phase for fines from soil washing	Wood Preserving	Fines from 23,000 cy of soil	Creosote, PAHs, PCP, Dioxins	In Design; full-scale unit planned for FY92	Fund Lead	Natalie Ellington 404-347-2643 FTS 257-2643
Brown Wood Preserving, FL, 04 (04/08/88)	Land Treatment	Wood Preserving	Soil (7,500 cy)	Creosote and PAHs	Operational; field work almost completed	PRP Lead; Remediation Technology	Martha Berry 404-347-2643 FTS 257-2643
Galesburg/Koppers, IL, 05 (06/30/89)	Land Treatment	Wood Preserving	Soil (15,200 cy)	Creosote, PAH, Phenols, and PCP	Pre-design	PRP Lead/ State Enforcement	Brad Bradley 312-886-4742 FTS 886-4742

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## Bioremediation

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Seymour Recycling, IN, 05 (09/30/87) Also see Vacuum Extraction	In situ Soil Bioremediation	Chemical Waste Management and Incineration	Soil (154,000 cy)	Petroleum Hydrocarbons, BTEX, and Various SVOCs	One-month application of nutrients completed Summer 1990	PRP Lead; ABB (Boston)	Jeff Gore 312-886-4747 FTS 886-4747
Cliff/Dow Dump, MI, 05 (09/27/89)	Excavation/On-site Bioremediation - Type to be Determined  In situ Soil and gw Bioremediation	Waste Disposal for Charcoal Manufacturing Plant	Soil (9,200 cy)  gw	Tar, PAHs, BTX, PCE, and Phenol  BTX, PAHs, and Phenols	Pre-design	PRP Lead	Lida Tan 312-886-1842 FTS 886-1842
Burlington Northern (Railroad Tie Treating Plant), MN, 05 (06/04/86)	Land Treatment	Wood Preserving	Soil (9,500 cy), Sludge (9,600 cy)	Creosote, PAHs, Phenols	Remedial action underway; will be operational for 2-3 more years	PRP Lead; Retec	Amy Blumberg 312-353-9306 FTS 886-9306 Todd Goeks (MN) 612-296-7710 Rich Truax (Retec) 303-493-3700
Old Inger Oil Refinery, LA, 06 (09/25/84)	Land Treatment	Oil Refining & Waste Oil Reclamation	Soil (150,000 cy), Waste oil and sludge (800,000 gal <sup>3,960</sup> cy combined)	Petroleum Hydrocarbons, Benzene, Ethylbenzene, and Metals	Installation underway; will be operational 4/91	Fund Lead; Westinghouse Haztech	Paul Sieminski 214-655-6710 FTS 255-6710
Sheridan Disposal Services, TX, 06 (12/29/88)	Slurry-Phase Bioremediation (Tank Bioremediation)	Commercial Waste Disposal	Soil (13,000 cy), Sludge (31,000 cy), Oil/emulsion (300 cy)	Benzene, Toluene (36,600 ppm sludge), PCBs, and Phenols	In Design	PRP Lead	Ruth Israeli 214-655-6735 FTS 255-6735
North Cavalcade Street, TX, 06 (06/28/88)	Excavation/On-site Bioremediation - Type to be Determined (Slurry phase or modified land treatment)	Wood Preserving	Soil (22,300 cy)	Creosote, PAHs, and BTX	In Design	State Lead/Fund Financed	Deborah Griswold 214-655-6715 FTS 255-6715 Lewis Rogers (TX) 512-463-8188
French Limited, TX, 06 (03/24/88)	In situ Lagoon Bioremediation	Petrochemical	Sludge, Sediments (70,100 cy)	BTEX, PAHs, Petroleum Hydrocarbons, and PCBs (616 mg/kg)	In Design	PRP Lead	Judith Black 214-655-6735 FTS 255-6735

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## Bioremediation

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Joslyn Manufacturing and Supply Co., MN, 05 (ROD Planned)	Land Treatment	Wood Preserving	Soil (75,000 cy)	PAHs, PCP	Operational since 8/89; scheduled completion end of 1991	PRP Lead/State Enforcement; ECOVA	Cliff Twaroski (MN) 612-296-7827 Kevin Turner 312-886-4444 FTS 886-4444
Atchison/Santa Fe/ Clovis, NM, 06 (09/23/88)	In situ Soil Bioremediation	Railyard Wastes (Industrial Wastewater)	Soil, sludges (28,599 cy combined)	Phenols, Petroleum Hydrocarbons, Diesel, Arsenic, Chromium, and Lead	Construction underway; operational in June 1991	PRP Lead; Radian	Susan Webster 214-655-6730 FTS 255-6730
Vogel Paint & Wax, IA, 07 (09/25/89)	Land Treatment	Paint Manufacturing Wastes	Soil (3,000 cy)	BTEX and PAHs	In Design	PRP Lead/State Enforcement	Steve Jones 913-551-7755 FTS 276-7755
Libby Ground Water Contamination, MT, 08 (12/30/88)	Land Treatment (soil, sediments) In situ Soil Bioremediation In situ gw Bioremediation	Wood Preserving	Soil, Sediments, (30,000 cy combined)  gw	Creosote, PCP, Benzene, PAHs, and Dioxin  Creosote, Benzene, PAHs, PCP, and Oil	Land treatment: in design, operating by summer 1991  In situ gw and Soil: in design	PRP Lead	Julie Dalsoglio 406-449-5414 FTS 585-5414 Scott Huling (RSKERL) 405-332-2313 FTS 743-2313
Burlington Northern (Somers Plant), MT, 08 (09/27/89)	Land Treatment  In situ gw Bioremediation	Wood Preserving	Soil, Sediments (11,700 cy combined) gw	Creosote, PAHs, Phenol, and Zinc	In Design; operational in 1992	PRP Lead	Jim Harris 406-449-5414 FTS 585-5414
Koppers (Groville Plant), CA, 09 (09/13/89) Also see Soil Washing	In situ Soil Bioremediation	Wood Preserving	Soil (110,000 cy)	PCP, Creosote, PAHs, BTX, Dioxin, Arsenic, and Chromium	In Design	PRP Lead	Fred Schaufler 415-744-2365 FTS 485-2365

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.



TABLE 3 (Continued)

January, 1991

## Chemical Extraction

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Norwood PCBs, MA, 01 (09/29/89)	Solvent Extraction	Industrial Waste Dumping	Soil (28,000 cy)	PCB and VOCs (TCE, Trichlorobenzene)	In Design	Fund Lead/Negotiation	Jane Downing 617-573-5730 FTS 833-1708
O'Connor, ME, 01 (09/27/89)	Solvent Extraction	Salvage & Electrical Transformer Recycling	Soil, Sediments (23,500 cy combined)	PCB and Lead	In Design	Fund Lead/Negotiation	Mike Jasinski 617-573-5786 FTS 833-1786
Pinette's Salvage Yard, ME, 01 (05/30/89)	Solvent Extraction	Salvage and Vehicle Repair	Soil (2,080 cy)	PCB, VOCs (Chlorobenzene, Dichlorobenzene, and Trichlorobenzene)	Contract awarded; mobilization scheduled to begin 4/91	Fund Lead; Sanivan Group	Ros Gilleland 617-573-5766 FTS 883-1766
Ewan Property, NJ, 02 (09/29/89) Also see Soil Washing	Solvent Extraction (followed by Soil Washing)	Industrial Waste Dumping	Soil (22,000 cy)	Chlorinated Aliphatic Organics, Aromatic Hydrocarbons, and Metals	Pre-design	PRP Lead	Craig DeBiase 212-264-5393 FTS 264-5393
GE Wiring Devices, PR, 02 (09/30/88)	Hydrometallurgical Treatment	Wiring Services Facility	Soil (5,500 cy)	Mercury	Pre-design	PRP Lead	Doug Tomchuk 212-264-7508 FTS 264-7508
United Creosoting, TX, 06 (09/29/89)	Critical Fluid Extraction	Wood Preserving	Soil (67,250 cy)	PAHs, PCP, and Dioxin	In Design	State Lead/ Fund Financed	Deborah Griswold 214-655-6715 FTS 255-6715 Paul Cravens (TX) 512-463-8182

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## Chemical Treatment

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Re-Solve, MA, 01 (09/24/87) Also see Thermal Desorption	Dechlorination of Residuals from Thermal Desorption	Chemical Reclamation Facility	Residuals from Thermal Desorption of 22,500 cy of soil	PCBs	In Design	PRP Lead/ Mixed Funding: Chemical Waste Management, Inc.	Lorenzo Thanto 617-223-5500 FTS 883-1500
Wide Beach Development, NY, 02 (09/30/85)	APEG Dechlorination	Contaminated Road Dust, Driveways, and Ditches	Soil (20,000 cy)	PCBs	Operational; scheduled completion 6/91	Fund Lead/Negotiation; Soil Tech, Inc.	Herb King 212-264-1129 FTS 264-1129
Palmetto Wood Preserving, SC, 04 (09/30/87)	Reduction of Cr(VI) to Cr(III) (Followed by Solidification)	Wood Preserving	Soil (12,680 cy)	15,000 mg/kg Metals (Chromium, Arsenic, and Copper)	Project completed; was operational 09/28/88 - 02/04/89	Fund Lead/Negotiation; Roy F. Weston	Al Cherry 404-347-7791 FTS 257-7791
Sol Lynn/Industrial Transformers, TX, 06 (03/25/88)	APEG Dechlorination	Transformer and Solvent Recycler	Soil (2,400 cy)	PCBs	In Design	PRP Lead	John Meyer 214-655-6735 FTS 255-6735

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## In situ Soil Flushing

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Byron Barrel & Drum, NY, 02 (09/29/89)	In situ Soil Flushing	Uncontrolled Dump Site and Landfill	Soil (5,200 cy)	VOCs (BTX, PCE, and TCE), PAHs, Phenol, and Dioxin	In Design	PRP Lead	Eduardo Gonzales 212-264-5714 FTS 264-5714
Goose Farm, NJ, 02 (09/27/85)	In situ Soil Flushing	Uncontrolled Dump Site	Soil (15,500 cy)	960 mg/kg VOCs (Toluene, Ethylbenzene, Dichloromethane, and TCE), SVOCs, PCBs, and PAHs	In Design	PRP Lead	Laura Lombardo 212-264-6787 FTS 264-6787
Lipari Landfill, NJ, 02 (09/30/85)	In situ Soil Flushing	Commercial Dump Site	Soil (650,000 cy)	257 mg/kg VOCs (Benzene, DCA, Dichloromethane, and Toluene), Phenol, and Metals (Chromium, Nickel, Lead, and Mercury)	Operational; scheduled completion 7/91	Fund Lead/Negotiation; COE/BECTEL	Fred Cataneo 212-264-9542 FTS 264-9542
Vineland Chemical, NJ, 02 (09/29/89) Also see Soil Washing	In situ Soil Flushing	Pesticide Manufacturing	Soil (126,000 cy)	1,921 mg/kg Arsenic, and 399 mg/kg VOCs (Dichloromethane)	Pre-design	Fund Lead	Matthew Westgate 212-264-3406 FTS 264-3406
Harvey-Knott Drum, DE, 03 (09/30/85)	In situ Soil Flushing	Uncontrolled Dump Site for Paint Solvent	Soil, Sediment (80,500 cy)	10,400 mg/kg VOCs (Benzene, Ethylbenzene, Methylene Chloride, and Dichloromethane), and SVOCs [Bis(2-Ethylhexyl) phthalate]	In Design: Reevaluating Alternative	PRP Lead	Paula Retzler 215-597-1113 FTS 597-1113
L.A. Clarke & Sons, VA, 03 (03/31/88) Also see Bioremediation	In situ Soil Flushing	Wood Preserving	Soil (6,000 cy)	Creosote, PAHs (5,000 mg/kg-Soil, 18 mg/kg-Sediments), and Benzene	In Design	PRP Lead	Eugene Wingert 215-597-1727 FTS 597-1727
Ninth Avenue Dump, IN, 05 (06/30/89)	In situ Soil Flushing	Commercial Dump Site	Soil (64,000 cy)	VOCs [BTEX, TCE (1,500 mg/kg)], PAHs, Phenols, Lead, PCBs, and Total Metals (1.4 mg/kg)	In Design	PRP Lead	Alison Hiltner 312-353-6417 FTS 353-6417
U.S. Aviex, MI, 05 (09/07/88)	In situ Soil Flushing	Chemical Packaging Facility	Soil (11,500 cy)	37 mg/kg VOCs (Carbon Tetrachloride, DCA, Ethylbenzene, PCE, TCE, Toluene, TCA, Freon, Xylene, and Chloroform)	In Design	PRP Lead	Robert Whippo 312-886-4759 FTS 886-4759

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## In situ Soil Flushing

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
South Cavalcade Street, TX, 06 (09/26/88) Also see Soil Washing	In situ Soil Flushing	Wood Preserving & Coal Tar Distillation	Soil (10,500 cy)	PAHs (8,567 mg/kg)	In Design	PRP Lead	Mark Fite 214-655-6715 FTS 255-6715
United Chrome Products, OR, 10 (09/12/86)	In situ Soil Flushing	Chrome Plating Facility	Soil (quantity not available)	162,580 mg/kg Chromium	Operational since 8/88	Fund Lead	Loren McPhillips 206-553-4903 FTS 399-4903

Note: Concentrations listed are maximums. Contacts listed are EPA regional staff unless otherwise indicated.

TABLE 3 (Continued)

January, 1991

## In situ Vitrification

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Ionia City Landfill, MI, 05 (09/29/89)	In situ Vitrification	Municipal Landfill	Soil, Debris (5,000 cy combined)	VOCs (Methylene Chloride, Styrene, Toluene, 1-1-1 Trichloroethane), and Lead	In Design	PRP Lead	Michael Gifford 312-886-7257 FTS 886-7257
Northwest Transformer (Mission Pole), WA, 10 (09/15/89)	In situ Vitrification	PCB Storage and Recycling Operations	Soil (1,200 cy)	PCBs	In Design	PRP Lead	Christine Psyk 206-553-6519 FTS 399-6519

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TABLE 3 (Continued)

January, 1991

## Soil Washing

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Ewan Property, NJ, 02 (09/29/89) Also see Chemical Extraction	Soil Washing (preceded by Chemical Extraction)	Industrial Waste Dumping	Soil (22,000 cy)	Chlorinated Aliphatic Organics, Aromatic Hydrocarbons, and Metals	Pre-design	PRP Lead	Craig DeBiase 212-264-5393 FTS 264-5393
Vineland Chemical, NJ, 02 (09/29/89) Also see In situ Soil Flushing	Soil Washing	Pesticide Manufacturing	Sediments (62,600 cy)	Arsenic	Pre-design	Fund Lead	Matthew Westgate 212-264-3406 FTS 264-3406
Cape Fear Wood Preserving, NC, 04 (06/30/89)	Soil Washing	Wood Preserving	Soil (22,000 cy)	Creosote, PAHs, Copper, Chromium, and Arsenic	In Design	Fund Lead	John Bornholm 404-347-7791 FTS 257-7791
United Scrap Lead/SIA, OH, 05 (09/30/88)	Soil Washing	Lead Battery Recycling	Soil (45,000 cy), Sediments (45,550 cy)	Lead and Arsenic	In Design	Fund Lead/Negotiation; Corps of Engineers/Bureau of Mines	Anita Boseman 312-886-6941 FTS 886-6941
Koppers/Texarkana, TX, 06 (09/23/88)	Soil Washing	Wood Preserving	Soil (19,400 cy)	PAHs and PCP	In Design	PRP Lead	Ursula Lennox 214-655-6735 FTS 255-6735
South Cavalcade Street, TX, 06 (09/26/88) Also see In situ Soil Flushing	Soil Washing	Wood Preserving & Coal Tar Distillation	Soil (19,500 cy)	PAHs	In Design	PRP Lead	Mark Fite 214-655-6715 FTS 255-6715
Koppers (Oroville Plant), CA, 09 (09/13/89) Also see Bioremediation	Soil Washing	Wood Preserving	Soil, Sediments (200,000 cy combined)	PAHs, PCP, and Dioxin	In Design	PRP Lead	Fred Schaffler 415-744-2365 FTS 484-2365

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TABLE 3 (Continued)

January, 1991

## Thermal Desorption

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Cannon Engineering/ Bridgewater, MA, 01 (03/31/88)	Thermal Aeration	Chemical Waste Handling, Storage, & Incineration Facility	Soil (11,330 cy)	VOCs (Benzene, TCE, and Vinyl Chloride)	Project completed; was operational 5/90 - 10/90	PRP Lead; Canonic Engineering	Dan Coughlin 617-573-1742 FTS 833-1742
McKin, ME, 01 (07/22/85)	Thermal Aeration	Waste Storage, Transfer, Disposal Facility	Soil (11,376 cy)	VOCs (TCE, BTX)	Project completed; was operational 7/86 - 2/87	PRP Lead; Canonic Engineering	Sheila Eckman 617-573-5784 FTS 833-1784
Ottati & Goss, NH, 01 (01/16/87)	Thermal Aeration	Drum Reconditioning Facility	Soil (16,000 cy)	VOCs (TCE, PCE, 1,2-DCA, and Benzene)	Project completed; was operational 6/89 - 9/89	PRP Lead; Canonic Engineering	Stephen Calder 617-573-9626 FTS 833-1626
Re-Solve, MA, 01 (09/24/87) Also see Chemical Treatment	Rotary Thermal Desorber	Chemical Reclamation Facility	Soil (22,500 cy)	PCBs	In Design	PRP Lead/ Mixed Funding	Lorenzo Thantu 617-223-5500 FTS 883-1500
Caldwell Trucking, NJ, 02 (09/25/86)	Low Temperature Vaporization	Unpermitted Septic Waste Facility	Soil (20,000 cy)	VOCs (TCE, PCE, and TCA)	In Design	Fund Lead	Ed Finnerty 212-264-3555 FTS 264-3555
Fulton Terminals, NY, 02 (09/29/89)	Low Temperature Thermal Treatment	Former Waste Tank Farm	Soil (4,000 cy)	VOCs (Xylene, Styrene, TCE, Ethylbenzene, Toluene) and PAHs (Pyrene, Naphthalene, Phenanthrene, and 2-Methylnaphthalene)	Pre-design	PRP Lead	Christos Tsiamis 212-264-5713 FTS 264-5713
Marathon Battery, NY, 02 (09/30/88)	Enhanced Volatilization	Former Battery Manufacturer	Soil (85,000 cy)	VOCs (PCE, Toluene, and TCE)	Pre-design	Fund Lead	Pam Tames 212-264-1036 FTS 264-1036
Metaltec/Aerosystems, NJ, 02 (06/30/86)	Low Temperature Thermal Treatment	Metal Manufacturing	Soil (8,000 cy)	TCE, other Chlorinated Organics, and Copper	In Design	Fund Lead	Ron Rusin 212-264-1873 FTS 264-1873

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TABLE 3 (Continued)

January, 1991

## Thermal Desorption

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Reich Farms, NJ, 02 (09/30/88)	Enhanced Volatilization	Uncontrolled Waste Disposal	Soil (1,120 cy)	VOCs and Semivolatiles	In Design	PRP Lead	Gary Adamkiewicz 212-264-7592 FTS 264-7592
SMS Instruments (Deer Park), NY, 02 (09/29/89)	In situ Steam Stripping	Military Aircraft Component Overhauler	Soil (1,250 cy)	Solvents (TCE, Xylene, Ethylbenzene, and Chlorobenzene)	In Design	Fund Lead	Abram Fayon 212-264-4706 FTS 264-4706
Waldick Aerospace Devices, NJ, 02 (09/29/87)	In situ Hot Air Stripping	Manufacturing and Electroplating of Plane Parts	Soil (2,500 cy)	TCE, PCE, Cyanide, and Metals	In Design; estimated design completion 12/92	Fund Lead	Larry Granite 212-264-7668 FTS 264-7668
Wamchem, SC, 04 (06/30/88)	Low Temperature Thermal Treatment	Former Dye Production & Solvent Recovery/ Recycling Facility	Soil (2,000 cy)	BTX and SVOCs (Naphthalene)	In Design	PRP Lead	George Reedy 404-347-7791 FTS 247-7791
Outboard Marine/Waukegan Harbor, IL, 05 (03/31/89)	Low Temperature Thermal Extraction (Taciuk Process)	Marine Products Manufacturing	Soil, Sediments (16,000 cy combined)	PCBs	In Design	PRP Lead; Canonic Engineering	Cindy Nolan 312-886-0400 FTS 886-0400

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## Vacuum Extraction

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Groveland Wells, MA, 01 (09/30/88)	Vapor Extraction	Manufacturing	Soil (19,000 cy)	VOCs (TCE and methylene chloride)	In Design	PRP Lead	Bob Leger 617-573-5734 FTS 833-1734
Kellogg-Deering Well Field, CT, 01 (09/29/89)	Vacuum Extraction	Municipal Landfill	Soil (quantity not available)	VOCs (TCE, PCE, and BTX)	In Design	Fund Lead/Negotiation	Leslie McVicker 617-573-9689 FTS 833-1689
South Municipal Water Supply Well, NH, 01 (09/27/89)	Vacuum Extraction	Commercial Manufacturing	Soil (7,500 cy)	VOCs (PCE, TCA, and TCE)	In Design	PRP Lead	Roger Duwart 617-573-9620 FTS 833-1620
Tinkham Garage, NH, 01 (09/30/86)	Vacuum Extraction	Uncontrolled Dump Site	Soil (9,000 cy)	VOCs (Benzene, Chloroform, DCE, PCE, TCE, and Vinyl Chloride)	In Design	PRP Lead; Terra Vac	Diana King 617-573-9676 FTS 883-1676
Wells G&H, MA, 01 (09/14/89)	In situ Volatilization	Uncontrolled Dump Site	Soil (7,400 cy)	VOCs (PCE and TCE)	In Design	PRP Lead	Barbara Newman 617-573-5736 FTS 883-1736
FAA Technical Center, NJ, 02 (09/26/89) Also see Bioremediation	Vacuum Extraction	Jet Fuel (JP4) Spill	Soil (33,000 cy)	BTEX, PAH, Chlorophenol, Phenol, Lead, and Chromium	In Design	PRP Lead	Carla Struble 212-264-4595 FTS 264-4595 Keith Buch (FAA) 609-484-6644
Upjohn Manufacturing Co., PR, 02 (09/30/88 for gw; treatment completed prior to ROD)	Vacuum Extraction	Industrial Facility, Chemical Leak	Soil (quantity not available)	VOCs (carbon tetrachloride and acetonitrile)	Project completed; was operational, late 1984 - to 3/88	PRP Lead; Terra Vac	Alison Hess 212-264-6040 FTS 264-6040
Bendix, PA, 03 (09/30/88)	Vacuum Extraction	Aircraft Manufacturing	Soil (quantity not available)	VOCs (TCE, Toluene, Vinyl Chloride, DCE, and Carbon Tetrachloride), and SVOCs	In Design	PRP Lead	Humane Zia 215-597-7713 FTS 597-7713
Henderson Road, PA, 03 (06/30/88)	In situ Volatilization (Tentative)	Injection Well	Soil (quantity not available)	VOCs (BTEX, Chlorobenzenes, DCA, and 1,1,1-TCA)	Pre-design	PRP Lead	Gerallyn Valls, Ruth Rzepski 215-597-8186 FTS 597-8186
Tyson's Dump, PA, 03 (03/31/88)	Vacuum Extraction	Commercial Surface Impoundment	Soil (30,000 cy)	VOCs (Benzene, Toluene, TCE, PCE, and Trichloropropane)	Operational since 11/88	PRP Lead; Terra Vac	Eugene Dennis 215-597-8555 FTS 597-8555

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## Vacuum Extraction

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Kysor Industrial, MI, 05 (09/29/89)	Vacuum Extraction	Truck Parts Manufacturing	Soil (13,200 cy)	VOCs (Xylene, Toluene, Ethylbenzene, and TCE)	In Design	Fund Lead/Negotiation Fishbeck, Thompson, and Carr Huber	Mary L. Gustafson 312-886-6144 FTS 886-6144
Long Prairie, MN, 05 (06/27/88)	Vacuum Extraction	Dry Cleaning Facility	Soil (3,600 cy)	VOCs (DCE, PCE, TCE, and Vinyl Chloride)	In Design	State Lead/Fund Financed	Kevin Turner 312-886-4444 FTS 886-4444
MIDCO I, IN, 05 (06/30/89)	Vapor Extraction	Commercial Dump Site	Soil (12,400 cy)	VOCs (BTX, TCE, Phenol, Dichloromethane, 2-Butanone, and Chlorobenzene), PAHs, and SVOCs	In Design	PRP Lead	Richard Boice 312-886-4740 FTS 886-4740
Miami County Incinerator, OH, 05 (06/30/89)	Vapor Extraction	Municipal Landfill and Surface Impoundment	Soil (98,000 cy)	VOCs (TCE, PCE, and Toluene)	Pre-design	PRP Lead	Anthony Rutter 312-886-8961 FTS 886-8961
Pristine, OH, 05 (12/31/87)	Vapor Extraction	Commercial Dump Site	Soil (38,720 cy)	VOCs (Benzene, Chloroform, 1-2 DCA, 1-2 DCE, Trichloroethene)	Pre-design	PRP Lead	Thomas Alcamo 312-886-7278 FTS 886-7278
Seymour Recycling, IN, 05 (09/30/87) Also see Bioremediation	Vacuum Extraction	Chemical Waste Management & Incineration	Soil (154,000 cy)	VOCs (TCA, Carbon Tetrachloride, PCE, Benzene, Vinyl Chloride, Chloroethane, and TCE)	Installation underway; will be operational Spring 1991	PRP Lead; Canonic Environment	Jeff Gore 312-886-4747 FTS 886-4747
Verona Well Field, MI, 05 (08/12/85)	Vacuum Extraction	Railroad Paint Shop, Solvent Reclaiming/ Distribution	Soil (35,000 cy)	VOCs (Dichloromethane, Chloroform, Carbon Tetrachloride, DCA, TCA, Vinyl Chloride, BTEX) and Naphthalene	Operational since 3/88	Fund Lead/Negotiation; Terra Vac	Margaret Guerriero 312-886-0399 FTS 886-0399
Wausau Groundwater Contamination, WI, 05 (09/29/89)	Vapor Extraction	Bulk Chemical Distribution, Machine Shop	Soil (1,300 cy)	TCE, PCE, and DCE	In Design	PRP Lead; Terra Vac	Margaret Guerriero 312-886-0399 FTS 886-0399
South Valley/Edmunds, NM, 06 (09/30/88)	Vapor Extraction	Aircraft Engine Manufacturing	Soil (36,000 cy)	VOCs (TCE)	In Design	PRP Lead	Tim Underwood 214-655-6730 FTS 255-6730

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## Vacuum Extraction

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Hastings Groundwater Contamination, NE, 07 (09/26/89)	Vapor Extraction	Former Grain Storage Area (Fumigants)	Soil (quantity not available)	VOCs (Carbon Tetrachloride, Ethylene Dibromide, PCE, TCA, and Chloroform)	In Design	PRP Lead	Darrel Sommerhauser 913-551-7052 FTS 276-7052
Hastings Groundwater Contamination, Colorado Ave., NE, 07 (09/28/88)	Vapor Extraction	Industrial Metal Finishing	Soil (42,700 cy)	VOCs (PCE, TCE, and TCA)	In Design	PRP Lead	Darrel Sommerhauser 913-551-7052 FTS 276-7052
Hastings Groundwater Contamination, Far-Mar-Co, NE, 07 (09/30/88)	Vapor Extraction	Former Grain Storage Area (Fumigants)	Soil (400 cy)	VOCs (Carbon Tetrachloride, Ethylene Dibromide, PCE, and TCA)	In Design	PRP Lead	Darrel Sommerhauser 913-551-7052 FTS 276-7052
Sand Creek Industrial, CO, 08 (09/29/89)	Vacuum Extraction	Refinery and Pesticides Manufacturing	Soil (>100,000 cy)	VOCs (TCE, PCE, methylene chloride, and Chloroform)	Design completed; will install after Non-Aqueous Phase Liquid addressed	Fund Lead; URS	Brian Pinkowski 303-293-1512 FTS 330-1512
Fairchild Semiconductor (San Jose), CA, 09 (03/20/89)	Vapor Extraction	Semiconductor Manufacturing Facility	Soil (3,400 cy)	VOCs (TCA, Xylenes, Acetone, Freon, DCE, and PCE)	Operational since 1988	PRP Lead/ State Enforcement; Canonie Environment	Helen McKinley 415-744-2236 FTS 484-2236 Will Bruhns (CA) 415-464-0838
Fairchild Semiconductor/MTV-I, CA, 09 (06/09/89)	Vapor Extraction	Semiconductor Manufacturing Facility, Metal Finisher	Soil (quantity not available)	VOCs (TCE, PCE, Vinyl Chlorides, DCA, DCE, and Freon) and Phenol	Pre-design	PRP Lead	Pattie Collins 415-744-2229 FTS 484-2229
Fairchild Semiconductor/MTV-II, CA, 09 (06/30/89)	Vapor Extraction	Semiconductor Manufacturing Facility, Metal Finisher	Soil (quantity not available)	VOCs (TCE, PCE, Vinyl Chlorides, DCA, DCE, and Freon) and Phenol	Pre-design	PRP Lead	Pattie Collins 415-744-2229 FTS 484-2229

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## Vacuum Extraction

Site Name, State, Region (ROD Date)	Specific Technology	Site Category	Media (Quantity)	Key Contaminants Treated	Status	Lead; Treatment Contractor	Contacts/ Phone
Fairchild/Intel, CA, 09 (06/09/89)	Vapor Extraction	Semiconductor Manufacturing Facility, Metal Finisher, Aircraft Maintenance	Soil (quantity not available)	VOCs (TCE, PCE, Vinyl Chlorides, DCA, DCE, and Freon) and Phenol	Pre-design	PRP Lead	Pattie Collins 415-744-2229 FTS 484-2229
Fairchild/Raytheon, CA, 09 (06/09/89)	Vapor Extraction	Semiconductor Manufacturing Facility, Metal Finisher, Aircraft Maintenance	Soil (quantity not available)	VOCs (TCE, PCE, Vinyl Chlorides, DCA, DCE, and Freon) and Phenol	Pre-design	PRP Lead	Pattie Collins 415-744-2229 FTS 484-2229
IBM (San Jose), CA, 09 (12/15/88) (site delisted 10/04/89)	Vapor Extraction	Computer Manufacturer	Soil (24,000 cy)	VOCs (Xylenes, Acetone, Freon, isopropyl alcohol, petroleum naphtha, and TCA)	Installation underway; will be operational in 1991	PRP Lead/ State Enforcement; Terra Vac	Helen McKinley 415-744-2236 FTS 484-2236 Will Bruhns (CA) 415-464-0838
Motorola 52nd Street, AZ, 09 (09/30/88)	Vapor Extraction	Manufacturing Facility	Soil (quantity not available)	VOCs (TCA, TCE, Carbon Tetrachloride, and Ethylbenzene)	In Design	PRP Lead/ State Enforcement	Mike Montgomery 415-744-2394 FTS 484-2360 Don Atkinson (CA) 602-257-6899
Phoenix-Goodyear Airport Area, AZ, 09 (09/26/89)	Vapor Extraction	Defense-related Manufacturing Facility	Soil (4,390 cy)	VOCs (TCE, PCE, and Acetone) and Methyl ethyl ketone	In Design	PRP Lead	Craig Cooper 415-744-2360 FTS 484-2360

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**APPENDIX A**  
**DOCUMENT REQUEST FORM**

The "Innovative Treatment Technologies: Semi-Annual Status Report" (EPA/540/2-91/001) is distributed twice a year to Superfund management in U.S. EPA Headquarters and regional offices, pertinent EPA laboratories, states, EPA libraries, and representatives of other federal agencies. All project contacts listed in the report also receive a copy. If you did not already receive this report directly, and would like to get on the mailing list, please complete the following form, and send to:

Ms. Deborah Lyne  
PRC Environmental Management Inc.  
1505 Planning Research Drive  
McLean, VA 22102

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