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Records Of Decision

Update

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From: Hazardous Site Control Division
To: EPA Regional Offices

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UPDATE ON GUIDANCE

The statutory requirements of CERCLA reauthorization and the Agency's efforts to streamline the remedial program have resulted in recent modifications to the RI/FS process. In an effort to communicate these program changes, a draft RI/FS Guidance was released for Regional review earlier this month. In addition, a series of 2-1/2-day RI/FS training workshops is being offered to Regional Remedial Project Managers, remedial staff, and State remedial personnel. (See the Calendar of Events for a schedule.) The objectives of the workshops are: (1) to provide a forum for

discussing RI/FS policies and procedures, (2) to obtain Regional insight and ideas, and (3) to promote inter-Regional communication. The workshops will also provide an opportunity for Regional input before the RI/FS Guidance is completed.

Topics to be covered during the workshop will include streamlining the RI/FS process, site characterization, development of risk assessments and alternative management strategies, and administrative record requirements. Attendance at the workshop will be limited to

enhance group discussion. For registration information, contact Margaret Barton at (301) 951-2200.

Distribution

Copies of the *Superfund ROD Update* will now be available through the EPA's Public Information Center in Washington, D.C. To receive an *Update*, please send a request to:

Environmental Protection Agency
Public Information Center
PM-211B
401 M Street, S.W.
Washington, D.C. 20024

CALENDAR OF EVENTS

RI/FS Training Workshop:	April 5-7	San Francisco, CA	June 1-3	Philadelphia, PA
	April 19-21	New York, NY	June 21-23	Chicago, IL
February 23-25	Washington, D.C.	May 3-5	Denver, CO	June 28-30
March 15-17	Atlanta, GA	May 17-19	Dallas, TX	Boston, MA

FY'87 RECORD OF DECISION SUMMARY TABLE

The FY'87 Record of Decision (ROD) Summary Table provides an overview of site problems, selected remedies, clean-up criteria, and estimated costs provided for all RODs signed in FY '87. This table reflects remedial program accomplishments in incorporating treatment technologies into source control

remedial actions. Seventy-five RODs were signed in FY '87. Forty-four of these RODs addressed final source control. The other 31 RODs addressed temporary storage, ground water actions only, and no further action. Of the 44 source control RODs, 27 employed treatment technologies. Thermal destruction was the

technology most often selected in FY '87 (48%), while solidification was selected 26% of the time. Thirty-two RODs included ground water pump and treatment as part of the selected remedial action. Additional information will be available in the Annual ROD Report.

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Incineration

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
I S	Ottati & Goss, NH Paul Marchessault (FTS) 833-1626	01/16/87	1st	Soil, sediment and GW with TCE, PCBs, VOCs, organics and inorganics	19,000 yd ³	Onsite incineration of soil <20 mg/kg PCBs, aeration of soils >20 mg/kg PCBs and >1 mg/kg total VOCs, GW pump and treatment with reinjction	Soil, sediments, and GW will attain the health- based cleanup level of 10 ⁻⁵	\$8,592,500 (capital) \$1,735,000 (annual O&M)
I F	Davis Liquid Waste, RI	09/29/87	1st	Soil and GW contaminated with VOCs, inorganics, organics, oily wastes and pesticides	25,000 yd ³	Onsite incineration, onsite disposal of treated soils, GW pump and treatment with reinjection; alternate water supply	GW/soils will be treated to attain 10 ⁻⁵ cancer risk level	\$10,385,600 (capital) \$4,526,000 (O&M for soil treatment)
II S	Williams Property, NJ Don Lynch (FTS) 264-8669	09/30/87	1st- Final	Soil and GW with PCE, organics and metals	700 yd ³ 400 µg/l GW concentration	Offsite incineration of soils, GW extraction and treatment with reinjection, alternate water supply	Excavation of soil to 15 mg/kg or greater, GW will be treated to MCL	\$513,750 (capital) \$64,600 (annual O&M)
IV F	Geiger (C&M Oil), SC Al Cherry (FTS) 257-2643	06/01/87	1st	Soil and GW contaminated with organics, metals, and PCBs	11,300 yd ³ . 62,000,000 gal	Onsite thermal treatment of soil, solidification/ stabilization, GW pump and treatment with discharge to SW	Soil will be treated to achieve MCLs, GW will attain the cumulative 10 ⁻⁵ cancer risk	\$5,583,000 (capital) \$367,200 (present worth O&M)
IV E	Sodyeco, NC Giezelle Bennett (FTS) 257-3402	09/24/87	1st- Final	Soil, SW and GW contaminated with organics, base/ neutrals and VOCs	150 yd ³ area D soil	Limited onsite incineration of contaminated soil, GW pump and treatment with offsite discharge to SW	Soil will attain all ARARs following GW remediation GW will meet Federal Drinking Water Criteria	\$2,089,000 - \$3,865,000 (present worth)
IV F	Tower Chemical, FI Chris Teepen (FTS) 257-2643	06/30/87	1st- Final	Soil and GW contaminated with pesticides and metals	4,000 yd ³ 100,000,000 gal	Onsite thermal treatment of soils (if non-hazardous, backfill treated soil and debris onsite), GW pump and onsite treatment with discharge to SW, individual treatment units for private wells	Soil will attain the 10 ⁻⁶ risk level, GW treatment will attain 10 ⁻⁶ risk level	\$6,788,000 (capital)
V F	Laskin/Poplar, OH Donna Twickler (FTS) 353-3236	09/30/87	2nd	Soil contaminated with PCBs, PAHs, VOCs and inorganics	900,000 yd ³	Onsite incineration of soil, offsite disposal of all incinerator ash; offsite treatment of waste water, offsite disposal of all tanks	NA	\$8,490,865 (present worth)
V S	Rose Township, MI Kevin Adler (FTS) 886-0403	09/30/87	1st- Final	Soil and GW contaminated with VOCs, TCE, PCBs, organics, inorganics and pesticides	50,000 yd ³	Onsite thermal destruction of soils, disposal of ash as either backfill or placed in an offsite RCRA facility, GW pump and treatment, fencing	Soil will attain 10 ⁻⁶ cancer risk, GW levels will also attain the 10 ⁻⁶ risk level	\$32,547,000 (capital) \$200,000 (annual O&M, years 0-10) \$70,000 (annual O&M years 11-30)
VI F	Bayou Bonfouca, LA Kathleen O'Reilly (FTS) 255-6710	03/31/87	2nd- Final	Soil, sediments, and GW contaminated with PAHs and inorganics	71,500 yd ³	Onsite incineration of soil, onsite disposal of ash and capping; GW pump and onsite treatment with reinjction	Soil contamination >1,300 mg/kg PAHs will be treated, >100 mg/kg PAHs will be capped, GW treatment will target the 10 ⁻⁴ to 10 ⁻⁶ risk level	\$25,000,000 (capital) \$100,000 (annual O&M)
VI F	Cleve Reber, LA Gary Bondy (FTS) 255-6710	03/31/87	1st	Soil, SW and GW contaminated with organics	6,400 drums 220,000 yd ³ 500,000 gal	Onsite incineration of drums and sludges, RCRA cap, gas venting pipes, pond water pump and treatment with discharge to SW	Remediation will attain the 10 ⁻⁶ cancer risk level	\$59,594,534 (capital) \$173,748 (annual O&M)

Key

NA - Not available/not applicable
S - State lead
F - Federal lead
RP - Responsible party lead
E - Enforcement lead

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Incineration (continued)

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
VI E	Hardage/Crner, OK Alan Tavenner (FTS) 255-6735	11/14/86	1st	Soil and GW contaminated with organics, TCE, PCBs and VOCs	180,000 yd ³ 10,000-20,000 drums	RCRA cap, onsite or offsite incineration of organic liquids, physiochemical treatment with discharge to POTW	NA	\$68,014,000 (capital) \$2,282,000 (present worth O&M)
VI S	Sand Springs Petrochemical Complex, OK Paul Sieminski (FTS) 255-6710	09/29/87	1st	Soil, SW, pits and GW contaminated with TCE, VOCs, benzene, organics and inorganics	130,000 yd ³ 715,000 gal	Offsite thermal destruction of sludges, solidification/ stabilization of remaining sludges, containment in an onsite RCRA landfill	NA	\$37,453,050 (capital) \$15,000 (annual O&M)
VI E	Gurley Pit, AR Tim Underwood (FTS) 255-6735	10/06/86	1st	Soil and SW contaminated with PCBs and organics	432,470 ft ³ 4,100,000 gal	Stabilization of sludge, soil and sediment with placement in onsite RCRA landfill, incineration of oil, and onsite treatment of contaminated water	NA	\$15,780,000 (capital) \$21,000 (annual O&M)

Solidification/Fixation

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
II F	Chemical Control, NJ Rick Schwarz (FTS) 264-1252	09/23/87	2nd	Soil contaminated with organics and inorganics	18,000 yd ³	In situ fixation of soils, removal of debris, and sealing of a sanitary sewer	NA	\$7,208,000 (capital) \$57,400 (annual O&M years 0-4) \$22,400 (annual O&M years 5-30)
IV E	Gold Coast, FL Meredith Anderson (FTS) 257-2643	09/11/87	1st- Final	Soil and GW contaminated with VOCs and metals	1,500 yd ³ 100,000 gal	Stabilization of soils with onsite disposal/capping, offsite disposal of sludges and soils, GW extraction and treatment	Soils will be excavated to the 10 ⁻⁴ risk level, GW treatment will attain MCLs	\$3,711,660 (capital)
IV F	Independent Nail, SC Michelle Glenn (FTS) 257-3402	09/28/87	1st	Soil and sediments contaminated with metals	6,200 yd ³	Solidification/stabilization of soil, backfilling of treated soil and cover	Soil will attain a 10 ⁻⁶ risk level	\$1,032,000 (capital) \$22,500 (O&M years 0-1) \$5,600 (O&M years 2-30)
IV F	Geiger, SC (refer to Incineration)							
V F	Liquid Disposal Landfill, MI John Tanaka (FTS) 886-6337	09/30/87	1st- Final	Soil and GW contaminated with PCBs, VOCs, organics, inorganics	NA	Onsite solidification of soil and waste, GW pump and treatment with discharge to SW, slurry wall and cap	Soil and GW based on 10 ⁻⁶ health-based risk level	\$21,743,100 (capital) \$316,600 (present worth O&M)
V RP	Northern Engraving, WI Doug Ballotti (FTS) 886-4752	09/29/87	1st- Final	Soil, sludge and GW contaminated with VOCs, organics and inorganics	4,400 yd ³	Onsite solidification of sludge and soil, RCRA cap, institutional controls to include deed and access restrictions	GW cleanup through the use of ACLs	\$295,000 (capital) \$16,000 (annual O&M)
VI S	Sand Springs, OK (refer to Incineration)							

FY 1987 Record of Decision Summary Table by Selected Remedy Category Stabilization/Neutralization

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
VI E	Mid South, AR Tim Underwood (FTS) 255-6735	11/14/86	1st- Final	Soil, sediments and GW contaminated with PAHs, organics and inorganics	45,750 yd ³	Consolidation/stabilization, capping of soils, institutional controls to include fencing and deed restrictions, GW pump and treatment	Specific soil goals based on the 10 ⁻⁵ risk level	\$3,500,000 (capital) \$153,500 (annual O&M)
VI E	Gurley Pit, AR (refer to Incineration)							

Volatilization/Aeration

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
I S	Ottati & Goss, NH (refer to Incineration)							
II F	Waldick Aerospace, NJ Raimo Liras (FTS) 264-8475	09/29/87	1st	Soil contaminated with TCE, VOCs and inorganics	10,500 yd ³	In situ air stripping of soils, offsite disposal of residuals, institutional controls to include site access and well restrictions, fencing	Soils will be excavated to New Jersey Department of Environmental Protection levels	\$2,602,118 (capital) \$55,000 (annual O&M)
V E	Seymour Recycling, IN Neil Meldgin (FTS) 886-4726	09/04/87	2nd- Final	Soil, sediments and GW contaminated with organics, TCE, PCE, and inorganics	3,000 yd ³ 150 gpm	Multi-media cap, soil vapor extraction system, GW pump and treatment, institutional controls to include deed and access restrictions with compliance point at the edge of the cap	GW cleanup levels will attain a cumulative 10 ⁻⁵ to 10 ⁻⁶ cancer risk level	\$10,536,000 (capital) \$7,200,000 (present worth O&M)

Soil Washing/Flushing

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
IV F	Palmetto Wood, SC Al Cherry (FTS) 257-3402	09/30/87	1st- Final	Soil and GW contaminated with metals	19,895 yd ³ 10,500,000 gal	Onsite soil flushing, GW pump and treatment with discharge to offsite SW, AWS	Soil cleanup will attain public health evaluation levels, GW to attain MCL	\$3,710,000 (capital) \$299,163 (annual O&M)
I F	Davis Liquid Waste, RI (refer to Incineration)							

Biodegradation

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
II E	Renora, Inc., NJ Perry Katz (FTS) 264-8678	09/29/87	1st	Soil and GW contaminated with PCBs, PAHs, VOCs, inorganics	1,100 yd ³ 4,400 yd ³	Biodegradation of PAH soils, off-site disposal of PCB soils	Soil VOCs 1 mg/kg, PAHs 10 mg/kg, VOCs 50 µg/l, and various inorganic levels	\$1,344,000 (capital, biodegradation costs not included)

Other

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
I F	Re-Solve, MA Dave Lederer (FTS) 833-1665	09/23/87	2nd	Soil, sediments and GW contaminated with PCBs, VOCs and inorganics	22,500 yd ³ 3,000 yd ³	KPEG dechlorination, onsite placement of soil, GW pump and treatment with re-injection. Include institutional controls	Soils will be treated to 25 mg/kg PCBs, sediments will be treated to 1 mg/kg, GW will be treated to the 10 ⁻⁵ cancer risk	\$13,748,900 (capital) \$1,097,000 (present worth O&M)

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Other (continued)

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
III F	Palmerton Zinc, PA Walt Graham (FTS) 597-8987	09/04/87	1st	Defoliation of mountainside from zinc, lead, cadmium and sulfur dioxide contamination	2,000 acres	Application of fly ash and offsite sludge on target areas, application of grass seed, seedlings and mulch	State loading rates for metals	Minimal to none
III E	West Virginia Ordnance Works, WV Hector Abrev (FTS) 597-9562	03/31/87	1st	Soil and sewer line contamination with organics and asbestos	4,305 yd ³	In situ flaming treatment, capping of treatment residuals, offsite disposal of asbestos, deed restrictions	Nitroaromatics at 50 mg/kg	\$1,807,000 (capital)
VIII F	Central City/Clear Creek, CO Holly Flinnau (FTS) 564-1839	09/30/87	1st	Drainage containing heavy metals	NA	Passive/active treatment system for acid mine drainage discharge	NA	\$2,000,000

Containment/Disposal

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
II RP	Diamond Alkali, NJ Jon Josephs (FTS) 264-8098	09/30/87	1st	Soil, structures, GW and air contaminated with TCDD (dioxin) and DDT	NA	Slurry wall, offsite treatment or disposal of drums, secure all material with >1 µg/kg TCDD onsite, GW pump and treatment, and onsite placement and capping of sludge	Cleanup levels will attain 10 ⁻⁶ cancer risk level	\$8,068,000 (capital) \$261,000 (annual O&M)
II E	GE Moreau, NY Nikki DiForte (FTS) 264-0970	07/13/87	1st	Soil, SW and GW contaminated with TCE, VOCs	8,600 yd ³	Excavation of soil and cap, SW and GW treatment with air stripping, extension of municipal water supply	Soil cleanup goals were not specified, GW and SW treatment will attain the MCL and State standards	\$16,382,000 (capital) \$78,000
II F	Volney Landfill, NY Bob Howe (FTS) 264-1263	07/31/87	1st	GW contaminated with VOCs and metals	4,000,000 yd ³	Capping, slurry wall, offsite or onsite treatment of leachate	MCL values, WQC values and the NY State values	\$12,754,000 (offsite leachate treatment) \$12,876,000 (onsite leachate treatment) (capital cost) \$691,000 (onsite leachate treatment) \$882,000 (offsite leachate treatment) (present worth O&M)
III F	Kane and Lombard, MD Stephany Del Ré (FTS) 597-0517	09/30/87	1st	Soil and GW contaminated with VOCs, PAHs, PCBs, and metals	67,000 yd ³	Removal of highly contaminated materials, onsite capping, subsurface containment, institutional controls	NA	\$4,692,660 (capital) \$28,930 (annual O&M)
III E	Saltville Waste Disposal, VA Jerry Amador (FTS) 597-3167	06/30/87	1st	Soil, sediments, SW, air and biota contaminated with mercury	NA	Runon controls, treatment of waste pond outfall, institutional controls	0.05 µg/l mercury in water (State standard)	\$840,052-\$2,143,052 (capital) \$221,941-\$258,941 (annual O&M) depending upon selection of sulfide ppt or carbon system, respectively
IV E	Newport Dump Dennis Manganello (FTS) 257-2234	03/27/87	1st	Soil, GW and sediments contaminated with metals, base/neutral and PCBs	1,000,000 yd ³	Multimedia monitoring program, revegetation of existing clay cap	Organics will attain 10 ⁻⁶ health-based risk level, GW will attain 1,000 µg/l barium and 50 µg/l chromium	\$516,000 (capital) \$63,000 (O&M years 0-2) \$135,000 (O&M years 3-30)

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Containment/Disposal (continued)

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
IV RP	N W 58th Street Landfill, FL Mary Gail (FTS) 257-2643	09/21/87	3rd- Final	Soil and GW contaminated with VOCs and metals	27,000,000 yd ³	Landfill soil, capping, alternate water supply	GW action will provide compliance with MCLs	\$2,500,000 (capital)
IV E	Powersville Landfill, GA Ben Moore (FTS) 257-2643	09/30/87	1st	Soil contaminated with pesticides	NA	Cap, grade, monitoring wells and gas vents, alternate water supply, institutional controls to include deed restrictions	NA	\$5,000,000 (capital) O&M costs not stated
V E	Envirochem, IN Karen Vendl (FTS) 886-4739	09/25/87	1st	Soil, sediments, SW and GW contaminated with VOCs and organics, soil contaminated with PCBs, GW contaminated with inorganics	4,200 yd ³	Onsite disposal, RCRA multilayer cap, rerouting of SW, GW collection and treatment, institutional controls to include deed and access restrictions	GW will attain MCLs	\$33,900,000 (present worth)
V RP	Johns-Manville, IL Brad Bradley (FTS) 886-4642	06/30/87	1st- Final	Soil, SW, GW and air contaminated with asbestos and inorganics	NA	Grading and covering waste materials, offsite disposal of asbestos-containing material, monitoring system	All media will attain NESHAP requirements for asbestos	\$4,026,000 (capital) \$49,000 (annual O&M)
V F	Marion-Bragg Landfill, IN Cindy Nolan (FTS) 886-0400	09/30/87	1st- Final	Soil, SW and GW contaminated with inorganics, PAHs, VOCs and organics	1,100,000 yd ³	Capping of site, flood control measures, additional GW studies	NA	\$5,800,000 (capital) \$1,000,000 (present worth)
V E	Northside Landfill, IN Karen Vendl (FTS) 886-4739	09/25/87	1st	Soil, sediments, SW and GW contaminated with PCBs, VOCs, organics and inorganics	4,200 yd ³	Onsite disposal of soils and sediments, RCRA cap, GW treatment system, institutional controls to include deed and access restrictions	GW will attain MCLs	\$33,900,000 (present worth)
V F	Schmalz Dump, WI Margaret Guerriero (FTS) 886-0399	09/30/87	2nd- Final	Soil contaminated with lead and chromium + 3	NA	Cap approximately 7 acres of soil	NA	\$687,664 (capital) \$17,940 (annual O&M)
VI E	Bayou Sorrel, LA Judith Black (FTS) 255-6730	11/14/87	1st- Final	Soil, waste ponds and GW contaminated with pesticides, VOCs, inorganics and organics	36,400 yd ³	Capping former disposal area, venting system, slurry wall, consolidation of wastes or offsite disposal	NA	\$23,200,000 (capital) \$28,700,000 (total present worth)
VI S	Compass Industries, OK Paul Sieminski (FTS) 255-6710	09/29/87	1st- Final	Soil, sediments, SW and GW contaminated with organics and inorganics	620,000 yd ³ 263,000 gal/yr	RCRA cap with diversion of SW onsite treatment of GW in upper, perched water bearing zone	GW effluent solid levels will meet NPDES requirements	\$9,255,526 (capital) \$272,830 (annual O&M)
VI S	Crystal City Airport, TX Jim McGuire (FTS) 255-6715	09/29/87	1st- Final	Soil and debris contaminated with inorganics and pesticides	12,000 yd ³	Onsite consolidation, RCRA cap over consolidation cell	Soil cleanup will attain a 10 ⁻⁵ health-based risk	\$1,600,000 (present worth)
VII E	Conservation Chemical, MD John Chen (FTS) 757-2856	09/30/87	1st- Final	GW and onsite structures contaminated	NA	Capping, GW pump and treatment, monitoring	NA	\$21,000,000

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Temporary Storage

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
VI S	Petro Chemical Systems, TX	03/27/87	1st	Soil contaminated with benzene, VOCs and PAHs	4,000 yd ³	Temporary storage in an onsite RCRA facility, temporary relocation of residents	Soil will be excavated to below 100 mg/kg PAHs	\$1,232,785 (capital)
	Sherry Feurst (FTS) 255-6715							\$4,750 (annual O&M)
VII F	Minker Stout/ Romaine Creek, MD	09/28/87	2nd	Soil and sediment contaminated with TCDD (dioxin)	4,400 yd ³	Temporary storage of soil in onsite RCRA facility	Soil and sediments will be excavated to below 1 mg/kg TCDD (dioxin)	\$4,488,000 (present worth)
	Bob Field (FTS) 757-2856							\$28,000 (annual O&M)
VII F	Minker Stout/ Stout, MD	09/28/87	3rd	Soil contaminated with TCDD (dioxin)	3,500 to 5,700 yd ³	Temporary storage of soil in an onsite RCRA facility, institutional controls to include site access restrictions	Soil will be excavated to below 1 mg/kg TCDD (dioxin)	\$5,817,000- \$7,018,000 (present worth)
	Bob Field (FTS) 757-2856				\$6,000 (annual O&M)			
VIII F	Denver Radium I, CO	09/30/87	4th	Soil is contaminated with radium and decay products	11,000 yd ³	Temporary onsite storage until a facility for permanent disposal becomes available with final offsite disposal	Radium-226 not to exceed background level by more than 5 pCi/g within 15 cm of the surface and 15 pCi/g more than 15 cm below the surface, and gamma radiation not to exceed background level by 2µR/hr	\$3,412,800 (capital)
	John Brink (FTS) 564-1518							\$290,000 (present worth O&M)
VIII F	Denver Radium II, CO	09/30/87	5th	Soil and buildings contaminated with radium and decay products	15,400 yd ³	Temporary onsite storage until a facility for permanent disposal becomes available with final offsite disposal (15,400 yd ³)	Radium-226 not to exceed background level by more than 5 pCi/g within 15 cm of the surface and 15 pCi/g 15 cm below the surface, and gamma radiation not to exceed background level by 2µR/hr	\$4,035,600 (capital)
	John Brink (FTS) 564-1518							\$194,700 (present worth O&M)
VIII F	Denver Radium/ Card Property, CO	06/30/87	3rd	Soil, sediment and debris contaminated with radium and decay products	4,000 yd ³	Temporary onsite storage and final offsite disposal	Radium-226 not to exceed background level by more than 5 pCi/g within 15 cm of the surface and 15 pCi/g 15 cm below the surface, and gamma radiation not to exceed background level by 2µR/hr	\$1,058,500 (capital)
	John Brink (FTS) 564-1518							\$89,500 (present worth O&M)
VIII F	Denver Radium/ Open Space Property, CO	09/30/87	7th	Soil contaminated with radium and decay products	1,310 yd ³	Onsite temporary containment followed by offsite disposal when available	Radium-226 not to exceed background level by more than 5 pCi/g within 15 cm of the surface and 15 pCi/g 15 cm below the surface, and gamma radiation not to exceed background level by 2µR/hr	\$743,300 (present worth)
	John Brink (FTS) 564-1518							
VIII F	Denver Radium III, CO	09/30/87	6th	Soil and debris contaminated with radium and decay products	Not provided	Onsite temporary containment of material followed by offsite permanent disposal when available	Radium-226 not to exceed background level by more than 5 pCi/g within 15 cm of the surface and 15 pCi/g, 15 cm below the surface, and gamma radiation not to exceed background level by 2µR/hr	\$3,400,000 (present worth)
	John Brink (FTS) 564-1518							

FY 1987 Record of Decision Summary Table by Selected Remedy Category

Groundwater Treatment

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
II S	Endicott Village Well Field, NY John McGahren (FTS) 264-9212	09/25/87	1st	GW contaminated with organics	3,700 gpm of water will be treated	GW treatment facility, purge well to intercept contamination	MCL for vinyl chloride of 2 µg/l	\$1,200,000 (capital) \$147,000 (annual O&M)
II S	Haviland Complex, NY Alex Posner (FTS) 264-5636	09/30/87	1st- Final	Sediments and GW contaminated with VOCs and inorganics	NA	GW pump and treatment, alternate water supply	NA	\$1,257,500 (capital) \$105,500 (annual O&M)
II F	Katonah Municipal Well, NY John McGahren (FTS) 264-9212	09/25/87	1st- Final	GW contaminated with PCE	370 ppm	Onsite treatment with discharge to POTW	PCE of less than 0.8 µg/l or nondetectable (10^{-6} risk)	\$1,365,000 (capital) \$296,000 (annual O&M)
II S	Montgomery Township, NJ Kathy Stryker (FTS) 264-1213	09/29/87	1st	GW contaminated with VOCs and inorganics	NA	Extension water supply system	Water will be monitored for compliance with MCLs	\$319,000 (capital)
II E	Vega Alta, PR José Font (809) 725-7825	09/30/87	1st	GW contaminated with PCE, TCE and other VOCs	3,800,000 gal/day well field supply	Well pump and treatment with discharge to creek or public distribution system	Treatment of GW will attain the 10^{-6} risk level which will include MCL values under SDWA	\$4,106,000 (capital) \$581,000 (annual O&M)
V RP	FMC, MN Kerry Street (FTS) 886-7290	09/30/87	2nd- Final	GW contaminated with TCE, PCE and VOCs	82 lbs total VOCs	GW extraction and discharge of untreated GW to POTW, institutional controls	GW treatment will meet the MCLs, Michigan Recommended Drinking Water Limits will be met	\$1,518,005 (present worth)
V F	Industrial Excess, OH Julie Mathiessen (FTS) 353-6756	09/30/87	1st- Final	GW contaminated with organics and inorganics	NA	Alternate water supply	NA	\$1,715,870- \$2,289,060 (present worth)
V F	New Brighton/ Arden Hills/St Anthony, MN Gene Wong (FTS) 353-6341	03/31/87	5th	GW contaminated with VOCs, PCE and TCE	Treatment of 3.3 mgd	Water treatment facilities with discharge to the municipal water treatment plant	GW treatment will attain the MCL	\$1,100,600 (capital) \$160,770 (annual O&M)
V E	New Brighton (TCAAP), MN Art Kleinrath (FTS) 886-7256	09/25/87	3rd	GW contaminated with VOCs and metals	NA	GW pump and treatment, onsite reinjection to aquifer	GW cleanup goals will attain 10^{-6} health-based levels	\$4,000,000 (capital) \$120,000 (annual O&M)
VIII E	Rocky Mountain Arsenal, CO Connally Mears (FTS) 564-1528	06/04/87	1st	GW contaminated with TCE, PCE and VOCs	NA	Water treatment system	Treatment will attain the proposed MCLs	\$8,869,000 (or \$10,100,000 with air stripping) (capital) \$372,000 (annual O&M)
IX RP	Litchfield Airport, AZ Jeff Rosenbloom (FTS) 454-9565	09/29/87	1st	GW contaminated with TCD, DCE and organics	NA	GW pump and treatment	NA	\$2,400,000
IX E	Operating Industries, CA Michele Dermer (FTS) 454-7415	07/31/87	1st	Leachate contamination	NA	GW pump and treatment, gas control systems	NA	\$1,900,000 (capital) \$700,000 (annual O&M)
IX S	San Fernando Valley, CA Jeanne Dunn (FTS) 454-7899	09/24/87	1st	GW contaminated with PCE, other organics	NA	GW pump and treatment	NA	\$3,000,000

FY 1987 Record of Decision Summary Table by Selected Remedy Category
Groundwater Treatment
(continued)

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
IX F	San Gabriel, CA Neil Ziemba (FTS) 454-7174	09/30/87	2nd	Contaminated GW	NA	Alternate water supply	NA	\$2,900,000
IX S	Stringfellow Acid Pits, CA John Rendall (FTS) 454-7368	06/25/87	3rd	GW contaminated with organics, TCE, CBSA, spent solvents and heavy metals	NA	GW pump and treatment	NA	\$2,000,000
X S	Colbert Landfill, WA Neil Thompson (FTS) 399-7177	09/29/87	1st- Final	GW contaminated with TCE, PCE, VOCs and methylene chloride	NA	Alternate water supply	Cleanup goals based on MCLs	\$24,000,000 (present worth)

No Further Action

Region/ Lead	Site/Contact	Signature Date	Oper- able Unit	Threat/Problem	Waste Volume	Components of Selected Remedy	Cleanup Goals	Capital/O&M Costs
II F	Cooper Road, NJ Ed Hanlon (FTS) 264-1784	09/29/87	1st- Final	None	None	No further action	NA	None
I RP	South Brunswick Township Landfill, NJ Pat Evangelista (FTS) 264-6311	09/30/87	1st- Final	None	NA	Remediation completed in 1985, monitoring will continue for 30 years	NA	NA
II S	Suffern Well Field, NY Dick Kaplan (FTS) 264-1861	09/25/87	1st- Final	GW contaminated with VOCs	None	No further action with GW monitoring	Levels comply with the NYSDEC guideline	\$311,000 (present worth)
III RP	Presque Isle, PA Pat Tan (FTS) 597-3164	09/30/87	1st- Final	None	None	No further action	NA	None
IV F	Parramore Surplus, FL Tom Roth (FTS) 257-2643	09/15/87	1st- Final	Possible contamination of GW with metals	None	No further action remedy with monitoring of SW and GW	NA	\$21,000 (capital) \$19,000 (annual O&M)
IV E	Tri City Oil, FL Sam Vance (FTS) 257-2643	09/21/87	1st- Final	None	None	No further action	NA	None
VI F	Highland Acid Pit, TX Cynthia Aduddell (FTS) 255-6715	06/26/87	2nd- Final	Possible contamination of SW and GW with VOCs and heavy metals	None	No further action remedy with monitoring of SW and GW	NA	\$4,700 (capital) \$11,120 (1st year O&M) \$6,980 (years 1-30)

SUPERFUND RECEIVED

Records Of Decision

Update

SEP 9 1987

ENVIRONMENTAL PROTECTION AGENCY
LIBRARY, REGION V

From: Hazardous Site Control Division
To: EPA Regional Offices

August 31, 1987
Vol. 3, No. 6

SUPERFUND RECORDS OF DECISION: KEY WORD LIST

Listed below are major key word categories and their subcategories for Superfund Records of Decision (RODs). Opposite each of these categories is a broad sampling of sites whose ROD contains the listed key word. Some categories may become obsolete, or new categories may develop over time because of changes in the focus of the Superfund remedy selection process. The Superfund managers in each Region have copies of all RODs.

KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)	KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)
Primary Hazardous Substances Detected		Primary Hazardous Substances Detected	
Acids	Charles George, MA (I)*; Nyanza Chemical, MA (I); Western Sand & Gravel, RI (I); Chemical Control, NJ (II); PAS Oswego, NY (II); Bruin Lagoon, PA (III); Douglassville, PA (III); Lackawanna Refuse Site, PA (III); A&F Materials-IRM, IL (V); Chem-Dyne-EDD, OH (V); Forest Waste, MI (V)*; Highlands Acid Pit, TX (VI); Tar Creek, OK (VI); Celtor Chemical Works, CA (IX); Iron Mountain Mines, CA (IX); Stringfellow Acid Pits, CA (IX)*; Queen City Farms-IRM/EDD WA (X); Western Processing, WA (X)	Chromium	Hocomonco Pond, MA (I); Industri-plex, MA (I); Nyanza Chemical, MA (I); D'Imperio Property, NJ (II); Lang Property, NJ (II); Lipari Landfill, NJ (II)*; Sinclair Refinery, NY (II); Spence Farm, NJ (II); Syncon Resins, NJ (II); Douglassville, PA (III); Limestone Road, MD (III); Matthews Electroplating, VA (III); McAdoo-IRM, PA (III); Davie Landfill, FL (IV); Pepper's Steel-EDD, FL (IV); Whitehouse Waste Oil Pits, FL (IV); Burrows Sanitation, MI (V); Northernaire, MI (V); Novaco Industries, MI (V); Schmalz Dump, WI (V); Wauconda Sand & Gravel, IL (V); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); Del Norte, CA (IX); Queen City Farms-IRM/EDD, WA (X); United Chrome, OR (X); Western Processing, WA (X)*
Arsenic	Hocomonco Pond, MA (I); Industri-plex, MA (I); Chemical Control, NJ (II); D'Imperio Property, NJ (II); Helen Kramer, NJ (II); Lipari Landfill, NJ (II)*; Love Canal, NY (II); Sinclair Refinery, NY (II); Spence Farm, NJ (II); Syncon Resins, NJ (II); Chisman Creek, VA (III); Douglassville, PA (III); McAdoo-IRM, PA (III); Moyer Landfill, PA (III); American Creosote, FL (IV); Davie Landfill, FL (IV); Pepper's Steel-EDD, FL (IV); Sapp Battery, FL (IV); Whitehouse Waste Oil Pits, FL (IV); Arcanum Iron & Metal, OH (V); Byron/Johnson Salvage Yard, IL (V); Chem-Dyne-EDD, OH (V); Morris Arsenic, MN (V); Arsenic Trioxide, ND (VIII); Milltown, MT (VIII); Milltown-S, MT (VIII); Celtor Chemical, CA (IX)*; McColl, CA (IX); Western Processing, WA (X)	Dioxin	Baird & McGuire, MA (I); Hyde Park-EDD, NY (II); Love Canal, NY (II); Times Beach, MO (VII); Ellisville MO (VII); Ellisville Site Area, MO (VII)*
Asbestos	New Lyme, OH (V); Mountain View/Globe, AZ (IX)	Heavy Metals	Auburn Road, NH (I); Baird & McGuire, MA (I); Cannon/Plymouth, MA (I); Charles George, MA (I)*; Hocomonco Pond, MA (I); Keefe Environmental, NH (I); Nyanza Chemical, MA (I); Re-Solve, MA (I); Sylvester, NH (I); Bog Creek Farm, NJ (II); Burnt Fly Bog, NJ (I); Caldwell Trucking, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); GEMS Landfill, NJ (II); Lang Property, NJ (II); Lipari Landfill, NJ (II)*; Lone Pine Landfill, NJ (II); Marathon Battery, NY (II); Metaltec/Aerosystems, NJ (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Sharkey Landfill, NJ (II); Sinclair Refinery, NJ (II); Syncon Resins, NJ (II); Army Creek Landfill, DE (III); Blossenski Landfill, PA (III);
Carcinogenic Compounds	Charles George, MA (I); Hocomonco Pond, MA (I); Metaltec/Aerosystems, NJ (II); Taylor Borough, PA (III); Hollingsworth, FL (IV); Reilly Tar, MN (V); Queen City Farms-IRM/EDD, WA (X)		

*Second Record of Decision
S: Supplemental Record of Decision
EDD: Enforcement Decision Document

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

**Primary Hazardous
Substances Detected**

**Primary Hazardous
Substances Detected**

Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Enterprise Avenue, PA (III); Harvey-Knott, DE (II); McAdoo-IRM, PA (III); Millcreek, PA (III); Moyer Landfill, PA (III); Sand, Gravel & Stone, MD (III); Wade, PA (III); A. L. Taylor, KY (IV); American Creosote, FL (IV); Distler Brickyard, KY (IV); Hipps Road Landfill, FL (IV); Hollingsworth, FL (IV); Miami Drum Services, FL (IV); Pepper's Steel-EDD, FL (IV); Pioneer Sand, FL (IV); Sapp Battery, FL (IV); A&F Materials-EDD, IL (V); A&F Materials-IRM, IL (V); Arcanum Iron & Metal, OH (V); Burrows Sanitation, MI (V); Byron/Johnson Salvage Yard, IL (V); Byron Salvage Yard, IL (V)*; Forest Waste, MI (V)*; Lake Sandy Jo, IN (V); Schmalz Dump, WI (V); Seymour, IN (V); Wauconda Sand & Gravel, IL (V); Bio-Ecology Systems, TX (VI); Highlands Acid Pit, TX (VI); Odessa Chromium I, TX (VI); Old Inger, LA (VI); MOTCO, TX (VI); Tar Creek, OK (VI); Libby Ground Water, MT (VIII); Marshall Landfill, CO (VIII); Milltown, MT (VIII); Milltown-S, MT (VIII); Smuggler Mountain, CO (VIII); Union Pacific, WY (VIII); Woodbury Chemical, CO (VIII); Celtor Chemical Works, CA (IX); Celtor Chemical, CA (IX)*; Iron Mountain Mine, CA (IX); Jibboom Junkyard, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits, CA (IX)*; Queen City Farms-IRM/EDD, WA (X); United Chrome, OR (X); Western Processing, WA (X); Western Processing, WA (X)*

Inorganics

Auburn Road, NH (I); Hocomonco Pond, MA (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Sylvester, NH (I); Bog Creek Farm, NJ (II); Caldwell Trucking, NJ (II); Chemical Control, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); Friedman Property, NJ (II); GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Krysowaty Farm, NJ (II); Love Canal, NY (II); Price Landfill, NJ (II)*; Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Army Creek Landfill, DE (III); Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Douglassville, PA (III); Drake Chemical, PA (III); Harvey-Knott, DE (III); Leetown Pesticide, WV (III); Limestone Road, MD (III); McAdoo-IRM, PA (III); Wade, PA (III); Distler Brickyard, KY (IV); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Pioneer Sand, FL (IV); SCRDI Dixiana, SC (IV); A. L. Taylor, KY (IV); A&F Materials-EDD, IL (V); A&F Materials-IRM, IL (V); Acme Solvents, IL (V); Burrows Sanitation, MI (V); Cemetery Dump, MI (V); Chem-Dyne-EDD, OH (V); Forest Waste, MI (V)*; Lake Sandy Jo, IN (V); Reilly Tar, MN (V); Wauconda Sand & Gravel, IL (V); Cecil Lindsey, AR (VI); MOTCO, TX (VI); Tar Creek, OK (VI); Ellisville, MO (VII); Libby Ground Water, MT (VIII); Iron Mountain Mine, CA (IX)

Mining Wastes

Tar Creek, OK (VI); Milltown, MT (VIII); Smuggler Mountain, CO (VIII); Celtor Chemical Works, CA (IX); Iron Mountain Mine, CA (IX)

Oils

McKin, ME (I)*; Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Pijak Farm, NJ (II); Price Landfill, NJ (II); Bruin Lagoon, PA (III); Bruin Lagoon, PA (III)*; Enterprise Avenue, PA (III); Coleman Evans, FL (IV); Miami Drum Services, FL (IV); Mowbray Engineering, AL (IV); A&F Materials-IRM, IL (V); Forest Waste-IRM, MI (V); Forest Waste, MI (V)*;

Organics/VOCs

Laskin/Poplar Oil, OH (V); New Lyme, OH (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Reilly Tar, MN (V); Geneva Industries, TX (VI); Old Inger, LA (VI); Ellisville, MO (VII); Union Pacific, WY (VIII); Western Processing, WA (X)

Auburn Road, NH (I); Baird & McGuire, MA (I); Beacon Heights, CT (I); Charles George, MA (I); Hocomonco Pond, MA (I); Industriplex, MA (I); Keefe Environmental, NH (I); Kellogg-Deering Well Field, CT (I); McKin-IRM, ME (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Sylvester, NH (I); Re-Solve, MA (I); Tinkham Garage, NH (I); Western Sand & Gravel, RI (I); Winthrop Landfill-EDD, ME (I); Bog Creek Farm, NJ (II); Brewster Well Field, NY (II); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Chemical Control, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); Friedman Property, NJ (II); GEMS Landfill, NJ (II); Goose Farm, NJ (II); Helen Kramer, NJ (II); Hyde Park-EDD, NY (II); Kentucky Avenue Wellfield, NY (II); Lang Property, NJ (II); Lipari Landfill, NJ (II); Lipari Landfill, NJ (II)*; Lone Pine Landfill, NJ (II); Love Canal, NY (II); Metaltec/Aerosystems, NJ (II); Olean Well Field, NY (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II)*; Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Vestal, NY (II); Army Creek Landfill, DE (III); Blossenski Landfill, PA (III); Bruin Lagoon, PA (III)*; Douglassville, PA (III); Drake Chemical, PA (III); Harvey-Knott, DE (III); Industrial Lane, PA (III); Leetown Pesticide, WV (III); Limestone Road, MD (III); McAdoo-IRM, PA (III); Millcreek, PA (III); Moyer Landfill, PA (III); Sand, Gravel & Stone, MD (III); Taylor Borough, PA (III); Tybouts Corner, DE (III); Tyson's Dump, PA (III); Wade, PA (III); American Creosote, FL (IV); Biscayne Aquifer Sites, FL (IV); Coleman Evans, FL (IV); Distler Brickyard, KY (IV); Distler Farm, KY (IV); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Hollingsworth, FL (IV); Pepper's Steel-EDD, FL (IV); Pioneer Sand, FL (IV); SCRDI Dixiana, SC (IV); A. L. Taylor, KY (IV); A&F Materials-EDD, IL (V); A&F Materials-IRM, IL (V); Acme Solvents, IL (V); Arrowhead Refinery, MN (V); Berlin & Farro, MI (V); Byron/Johnson Salvage Yard, IL (V); Byron Salvage Yard, IL (V)*; Cemetery Dump, MI (V); Charlevoix, MI (V); Charlevoix, MI (V)*; Chem-Dyne-EDD, OH (V); Eau Claire-IRM, WI (V); Kummer Landfill, MN (V); Main St. Wellfield, IN (V); New Brighton-Interim Water Treatment, MN (V); New Brighton/St. Anthony-IRM, MN (V); New Brighton-Water Supply System, MN (V); New Lyme, OH (V); Old Mill OH (V); Reilly Tar & Chemical-EDD, MN (V); Seymour, IN (V); Verona Well Field-IRM, MI (V); Verona Well Field, MI (V)*; Wauconda Sand & Gravel, IL (V); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); South Valley-IRM, NM (VI); Triangle Chemical, TX (VI); Aidex-IRM, IA (VII); Aidex IA (VII)*; Des Moines TCE, IA (VII); Ellisville, MO (VII); Ellisville Site Area, MO (VII)*; Libby Ground Water, MT (VIII); Marshall Landfill, CO (VIII); Union Pacific, WY (VIII); Woodbury

*Second Record of Decision
S: Supplemental Record of Decision
EDD: Enforcement Decision Document

KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)	KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)
Primary Hazardous Substances Detected	Chemical, CO (VIII); Del Norte, CA (IX); McColl, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits, CA (IX)*; Ponders Corner-IRM, WA (X); Queen City Farms-IRM/EDD, WA (X); South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*; Western Processing, WA (X); Western Processing, WA (X)*	Primary Hazardous Substances Detected	CA (IX)*; Taputimu Farm, AS (IX); Western Processing, WA (X)
PAH (Polynuclear Aromatic Hydrocarbons)	Baird & McGuire, MA (I); Cannon/Plymouth, MA (I); Caldwell Trucking, NJ (II); Douglassville, PA (III); Millcreek, PA (III); Taylor Borough, PA (III); Westline Site, PA, (III); American Creosote, FL (IV); SCRDI Dixiana, SC (IV); A. L. Taylor, KY (IV); Whitehouse Waste Oil Pits, FL (IV); Arrowhead Refinery, MN (V); Lake Sandy Jo, IN (V); Laskin/Poplar Oil, OH (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Geneva Industries, TX (VI); United Creosoting, TX (VI); Libby Ground Water, MT (VIII); Western Processing, WA (X)*	Phenols	Hocomonco Pond, MA (I); Picillo Farm, RI (I); Goose Farm, NJ (II); Helen Kramer, NJ (II); Hyde Park-EDD, NY (II); Lipari Landfill, NJ (II); Lipari Landfill, NJ (II)*; Love Canal, NY (II); Pijak Farm, NJ (II); Sinclair Refinery, NY (II); Douglassville, PA (III); Millcreek, PA (III); Sand, Gravel & Stone, MD (III); Westline, PA (III); Coleman Evans, FL (IV); Whitehouse Waste Oil Pits, FL (IV); Laskin/Poplar Oil, OH (V); Reilly Tar & Chemical-EDD, MN (V); Geneva Industries, TX (VI); Sikes Disposal Pits, TX (VI); Ellisville, MO (VII); Queen City Farms-IRM/EDD, WA (X); Western Processing, WA (X)*
PCBs (Polychlorinated Biphenyls)	Picillo Farm, RI (I); Tinkham Garage, NH (I); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Chemical Control, NJ (II); Goose Farm, NJ (II); Hyde Park-EDD, NY (II); Hudson River, NY (II); Krysowaty Farm, NJ (II); Pijak Farm, NJ (II); Sinclair Refinery NY (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Wide Beach, NY (II); Douglassville, PA (III); Harvey-Knott, DE (III); Lehigh Electric, PA (III); Millcreek, PA (III); Mowbray Engineering, AL (IV); Pepper's Steel-EDD, FL (IV); SCRDI Dixiana, SC (IV); A&F Materials-IRM, IL (V); A&F Materials-EDD, IL (V); Acme Solvents, IL (V); Berlin & Farro, MI (V); Byron/Johnson Salvage Yard, IL (V); Chem-Dyne-EDD, OH (V); Forest Waste-IRM, MI (V); Forest Waste, MI (V)*; LaSalle Electrical, IL (V); Laskin/Poplar Oil, OH (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Schmalz Dump, WI (V); Bio-Ecology Systems, TX (VI); Geneva Industries, TX (VI); MOTCO, TX (VI); Jibboom Junkyard, CA (IX); Taputimu Farm, AS (IX); Queen City Farms-IRM/EDD, WA (X); Western Processing, WA (X)*	Radioactive Materials	Lansdowne Radiation, PA (III); Lansdowne Radiation, PA (III)*; Moyer Landfill, PA (III); Denver Radium/ROBCO, CO (VIII); Denver Radium Site Streets, CO (VIII)
PCE (Tetrachloroethylene/Perchloroethylene)	Keefe Environmental, NH (I); Picillo Farm, RI (I); Brewster Well Field, NY (II); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); Metaltec/Aerosystems, NJ (II); Rockaway Borough Wellfield, NJ (II); Fischer & Porter, PA (III); SCRDI Dixiana, SC (IV); A. L. Taylor, KY (IV); Byron Salvage Yard, IL (V)*; Charlevoix, MI (V); Charlevoix, MI (V)*; Main St. Wellfield, IN (V); New Brighton/Arden Hills/St. Anthony, MN (V); Verona Well Field-IRM, MI (V); Verona Well Field, MI (V)*; Geneva Industries, TX (VI); Marshall Landfill, CO (VIII); San Gabriell/Area I, CA (IX); Ponders Corner, WA (X)*; Queen City Farms-IRM/EDD, WA (X); South Tacoma Channel-Well 12A, WA (X)*	Sludge	Tinkham Garage, NH (I); Bridgeport, NJ (II); Florence Landfill, NJ (II); Price Landfill, NJ (II); Price Landfill, NJ (II)*; Swope Oil, NJ (II); Bruin Lagoon, PA (III); Bruin Lagoon, PA (III)*; Enterprise Avenue, PA (III)*; Lackawanna Refuse Site, PA (III); McAdoo Associates, PA (III)*; Savie Landfill, FL (IV); Pioneer Sand, FL (IV); Berlin & Farro, MI (V); Burrows Sanitation, MI (V); Forest Waste-IRM, MI (V); Forest Waste, MI (V)*; Laskin/Poplar Oil, OH, (V); New Lyme, OH (V); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); Des Moines TCE, IA (VII); Ellisville, MO (VII); McColl, CA (IX)
Pesticides	Baird & McGuire, MA (I); Cannon/Plymouth MA (I); Chemical Control, NJ (II); Krysowaty Farm, NJ (II); Lone Pine Landfill, NJ (II); Love Canal, NY (II); Pijak Farm, NJ (II); Syncon Resins, NJ (II); Douglassville, PA (III); Drake Chemical, PA (III); Leetown Pesticide, WV (III); Gallaway Ponds, TN (IV); Miami Drum Services, FL (IV); SCRDI Dixiana, SC (IV); Chem-Dyne-EDD, OH (V); Old Inger, LA (VI); Aidex-IRM, IA (VII); Ellisville, MO (VII); Woodbury Chemical, CO (VIII); Del Norte, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits,	Solvents	Keefe Environmental, NH (I); McKin, ME (I)*; Western Sand & Gravel, RI (I); Winthrop Landfill-EDD, ME (I); Burnt Fly Bog, NJ (II); Chemical Control, NJ (II); Kentucky Avenue Wellfield, NY (II); Krysowaty Farm, NJ (II); Lipari Landfill, NJ (II); Lone Pine Landfill, NJ (II); Spence Farm, NJ (II); Vestal, NY (II); Enterprise Avenue, PA (III); Lackawanna Refuse Site, PA (III); McAdoo-IRM, PA (III); McAdoo Associates, PA (III)*; Millcreek, PA (III); Miami Drum Services, FL (IV); A&F Materials-IRM, IL (V); Berlin & Farro, MI (V); Charlevoix, MI (V); Cross Bros., IL (V); New Brighton-Interim Water Treatment, MN (V); New Brighton-Water Supply System, MN (V); New Lyme, OH (V); Old Mill, OH (V); Verona Well Field, MI (V)*; Bio-Ecology Systems, TX (VI); Old Inger, LA (VI); Ellisville, MO (VII); Taputimu Farm, AS (IX); Ponders Corner-IRM, WA (X); Ponders Corner, WA (X)*; South Tacoma, WA (X); Western Processing, WA (X)
		Synfuels	Western Processing, WA (X)
		TCE (Trichloroethylene)	Auburn Road, NH (I); Charles George, MA (I); Keefe Environmental, NH (I); Kellogg-Deering Well Field, CT (I); McKin-IRM, ME (I); Tinkham Garage, NH (I); Western Sand & Gravel, RI (I); Brewster Well Field, NY (II); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Goose Farm, NJ (II); Lang Property, NJ (II); Metaltec/Aerosystems, NJ (II); Olean Well Field, NY (II); Price Landfill, NJ (II)*; Rockaway Borough Wellfield, NJ (II); Sharkey Landfill, NJ (II); Vestal, NY (II); Blosenski Landfill, PA (III); Fischer & Porter, PA (III); Heleva Landfill, PA (III); Industrial Lane, PA (III); Limestone Road,

*Second Record of Decision
S: Supplemental Record of Decision
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KEY WORDS
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ASSOCIATED ROD SITES
Site, State (Region)

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

**Primary Hazardous
Substances Detected**

MD (III); Millcreek, PA (III); Moyer Landfill, PA (II); Taylor Borough, PA (II); Distler Brickyard, KY (IV); Hollingsworth, FL (IV); A&F Materials-EDD, IL (V); Acme Solvents, IL (V); Byron Salvage Yard, IL (V)*; Charlevoix, MI (V); Charlevoix, MI (V)*; LeHillier/Mankato, MN (V); Main St. Wellfield, IN (V); New Brighton/Arden Hills/St. Anthony, MN (V); New Brighton-Interim Water Treatment, MN (V); New Brighton/St. Anthony-IRM, MN (V); New Brighton-Water Supply System, MN (V); Seymour, IN (V); Verona Well Field-IRM, MI (V); Verona Well Field, MI (V)*; Bio-Ecology Systems, TX (VI); Geneva Industries, TX (VI); Des Moines TCE, IA (VII); Marshall Landfill, CO (VII); San Gabriel/Area I, CA (IX); Queen City Farms-IRM/EDD, WA (X); South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*; Western Processing, WA (X)

Toluene

Charles George, MA (I); Industri-plex, MA (I); Winthrop Landfill-EDD, ME (I); Bog Creek Farm, NJ (II); Bridgeport, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Goose Farm, NJ (II); Helen Kramer, NJ (II); Hyde Park-EDD, NY (II); Lang Property, NJ (II); Lipari Landfill, NJ (II); Lipari Landfill, NJ (II)*; Love Canal, NY (II); Sinclair Refinery, NY (II); Blosenski Landfill, PA (III); McAdoo-IRM, PA (III); McAdoo Associates, PA (III)*; Moyer Landfill, PA (II); Taylor Borough, PA (II); Tybouts Corner, DE (III); American Creosote, FL (IV); Distler Brickyard, KY (IV); Hipps Road Landfill, FL (IV); A.L. Taylor, KY (IV); New Lyme, OH (V); Seymour, IN (V); Verona Well Field, MI (V)*; Sikes Disposal Pits, TX (VI); Triangle Chem., TX (VI); Ellisville, MO (VII); Queen City Farms-IRM/EDD, WA (X); Western Processing, WA (X)*

Contaminated Media

Air

McKin-IRM, ME (I); Sylvester, NH (I); Combe Fill South Landfill, NJ (II); GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Love Canal, NY (II); Heleva Landfill, PA (III); Lansdowne Radiation, PA (III)*; Taylor Borough, PA (II); Wade, PA (III); Berlin & Farro, MI (V); Chem-Dyne-EDD, OH (V); Outboard Marine, IL (V); Verona Well Field-IRM, MI (V); Mountain View/Globe, AZ (IX); Taputimu Farm, AS (IX); South Tacoma, WA (X)

Ground Water

Auburn Road, NH (I); Baird & McGuire, MA (I); Beacon Heights, CT (I); Cannon/Plymouth, MA (I); Charles George, MA (I); Hocomonco Pond, MA (I); Industri-plex, MA (I); Kellogg-Deering Well Field, CT (I); McKin-IRM, ME (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Re-Solve, MA (I); Sylvester, NH (I); Tinkham Garage, NH (I); Western Sand & Gravel, RI (I); Winthrop Landfill-EDD, ME (I); Bog Creek Farm, NJ (II); Brewster Well Field, NY (II); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Chemical Control, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); FriedmanProperty, NJ (II); GEMS Landfill, NJ (II); Goose Farm, NJ (II); Helen Kramer, NJ (II); Hyde Park-EDD, NY (II); Kentucky Avenue Wellfield, NY (II); Krysowaty Farm, NJ (II); Lang Property, NJ (II); Lipari Landfill,

Contaminated Media

NJ (II); Lipari Landfill, NJ (II)*; Lone Pine Landfill, NJ (II); Meltaltec/Aerosystems, NJ (II); Olean Well Field, NY (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II); Price Landfill, NJ (II)*; Rockaway Borough Wellfield, NJ (II); Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Spence Farm, NJ (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Vestal, NY (II); Army Creek Landfill, DE (II); Blosenski Landfill, PA (III); Bruin Lagoon, PA (II); Bruin Lagoon, PA (II)*; Chisman Creek, VA (III); Douglassville, PA (III); Drake Chemical, PA (III); Fischer & Porter, PA (III); Harvey-Knott, DE (III); Heleva Landfill, PA (III); Industrial Lane, PA (II); Limestone Road, MD (III); Matthews Electroplating, VA (II); McAdoo-IRM, PA (II); McAdoo Associates, PA (II)*; Millcreek, PA (III); Moyer Landfill, PA (III); Sand, Gravel & Stone, MD (III); Tybouts Corner, DE (III); Tyson's Dump, PA (III); Wade, PA (III); Westline, PA (III); American Creosote, FL (IV); Biscayne Aquifer Sites, FL (IV); Coleman Evans, FL (IV); Davie Landfill, FL (IV); Distler Brickyard, KY (IV); Hipps Road Landfill, FL (IV); Hollingsworth, FL (IV); Miami Drum Services, FL (IV); Pepper's Steel-EDD, FL (IV); SCRDI Dixiana, SC (IV); Sapp Battery, FL (IV); Varsol Spill Site, FL (IV); Whitehouse Waste Oil Pits, FL (IV); A&F Materials-EDD, IL (V); A&F Materials-IRM, IL (V); Acme Solvents, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Burrows Sanitation, MI (V); Byron Salvage Yard, IL (V)*; Charlevoix, MI (V); Charlevoix, MI (V)*; Chem-Dyne-EDD, OH (V); Eau Claire-IRM, WI (V); Forest Waste, MI (V)*; Lake Sandy Jo, IN (V); LeHillier/Mankato, MN (V); Main St. Wellfield, IN (V); New Brighton/Arden Hills/St. Anthony, MN (V); New Brighton-Interim Water Treatment, MN (V); New Brighton/St. Anthony-IRM, MN (V); New Brighton-Water Supply System, MN (V); New Lyme, OH (V); Northernaire, MI (V); Novaco Industries, MI (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Seymour, IN (V); Verona Well Field-IRM, MI (V); Verona Well Field, MI (V)*; Wauconda Sand & Gravel, IL (V); Bayou Bonfouca, LA (VI); Bio-Ecology Systems, TX (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); South Valley-IRM, NM (VI); Tar Creek, OK (VI); United Creosoting, TX (VI); Aidex-IRM, IA (VII); Aidex, IA (VII)*; Des Moines TCE, IA (VII); Arsenic Trioxide, ND (VIII); Libby Ground Water, MT (VIII); Marshall Landfill, CO (VIII); Milltown-S, MT (VIII); Smuggler Mountain, CO (VIII); Union Pacific, WY (VIII); Celtor Chemical Works, CA (IX); Del Norte, CA (IX); McColl, CA (IX); San Gabriel/Area I, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits, CA (IX)*; Ponders Corner-IRM, WA (X); Ponders Corner, WA (X)*; Queen City Farms-IRM/EDD, WA (X); South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*; United Chrome OR (X); Western Processing, WA (X); Western Processing, WA (X)*

**Sediments (Creek/
River/Stream)**

Auburn Road, NH (I); Cannon/Plymouth, MA (I); Hocomonco Pond, MA (I); Nyanza

*Second Record of Decision
S: Supplemental Record of Decision
EDD: Enforcement Decision Document

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

Contaminated Media

Chemical, MA (I); Tinkham Garage, NH (I); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); GEMS Landfill, NJ (II); Hudson River, NY (II); Love Canal, NY (II); Pijak Farm, NJ (II); Syncon Resins, NJ (II); Wide Beach, NY (II); Army Creek Landfill, DE (III); Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Douglassville, PA (II); Harvey-Knott, DE (III); Leetown Pesticide, WV (III); Limestone Road, MD (III); Millcreek, PA (III); Sand, Gravel & Stone, MD (III); Tyson's Dump, PA (III); Westline, PA (III); American Creosote, FL (IV); Coleman Evans, FL (IV); Pepper's Steel-EDD, FL (IV); Sapp Battery, FL (IV); Whitehouse Waste Oil Pits, FL (IV); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Burrows Sanitation, MI (V); Fields Brook, OH (V); Forest Waste, MI (V)*; Lake Sandy Jo, IN (V); Outboard Marine Corp., IL (V); Schmalz Dump, WI (V); Wauconda Sand & Gravel, IL (V); Bayou Bonfouca, LA (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Sikes Disposal Pits, TX (VI); Milltown, MT (VIII); Woodbury Chemical (VIII); Iron Mountain Mine, CA (IX); Queen City Farms-IRM/EDD, WA (X); Western Processing, WA (X)*

Sludge

Hocomonco Pond, MA (I); Industri-plex, MA (I); Nyanza Chemical, MA (I); Bridgeport, NJ (II); Swope Oil, NJ (II); American Creosote, FL (IV); Arrowhead Refinery, MN (V); Berlin & Farro, MI (V); Bio-Ecology Systems, TX (VI); Highlands Acid Pit, TX (VI); Old Inger, LA (VI); Queen City Farms-IRM/EDD, WA (X)

Soil

Auburn Road, NH (I); Baird & McGuire, MA (I); Beacon Heights, CT (I); Cannon/Plymouth, MA (I); Hocomonco Pond, MA (I); Industri-plex, MA (I); Keefe Environmental, NH (I); McKin-IRM, ME (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Re-Solve, MA (I); Tinkham Garage, NH (I); Western Sand & Gravel, RI (I); Bog Creek Farm, NJ (II); Brewster Well Field, NY (II); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Chemical Control, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); GEMS Landfill, NJ (II); Goose Farm, NJ (II); Helen Kramer, NJ (II); Hyde Park-EDD, NY (II); Krysowaty Farm, NJ (II); Lang Property, NJ (II); Lipari Landfill, NJ (II); Lipari Landfill, NJ (II)*; Lone Pine Landfill, NJ (II); Love Canal, NY (II); Metaltec/Aerosystems, NJ (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II); Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Spence Farm, NJ (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Vestal, NY (II); Wide Beach, NY (II); Army Creek Landfill, DE (III); Blosenski Landfill, PA (III); Bruin Lagoon, PA (III); Douglassville, PA (III); Drake Chemical, PA (III); Harvey-Knott, DE (III); Enterprise Avenue, PA (III); Lackawanna Refuse Site, PA (III); Lansdowne Radiation, PA (III); Lansdowne Radiation, PA (III)*; Leetown Pesticide, WV (III); Lehigh Electric, PA (III); McAdoo-IRM, PA (III); McAdoo Associates, PA (III)*; Millcreek, PA (III); Matthews Electroplating, VA (III); Sand, Gravel & Stone, MD (III); Taylor Borough, PA (III); Tybouts Corner, DE (III); Tyson's Dump, PA (III); Wade, PA (II); Westline, PA (III); American Creosote, FL (IV); Coleman

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

Contaminated Media

Evans, FL (IV); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Hollingsworth, FL (IV); Miami Drum Services, FL (IV); Mowbray Engineering, AL (IV); Pepper's Steel-EDD, FL (IV); Pioneer Sand, FL (IV); Sapp Battery, FL (IV); Whitehouse Waste Oil Pits, FL (IV); A&F Materials-IRM, IL (V); A&F Materials-EDD, IL (V); Acme Solvents, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Berlin & Farro, MI (V); Burrows Sanitation, MI (V); Byron/Johnson Salvage Yard, IL (V); Cemetery Dump, MI (V); Chem-Dyne-EDD, OH (V); Cross Bros., IL (V); Distler Brickyard, KY (V); Forest Waste-IRM, MI (V); Forest Waste, MI (V)*; Lake Sandy Jo, IN (V); LaSalle Electrical, IL (V); Laskin/Poplar Oil, OH (V); Main St. Wellfield, IN (V); Morris Arsenic, MN (V); New Lyme, OH (V); Northernaire, MI (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Schmalz Dump, WI (V); Seymour, IN (V); Verona Well Field, MI (V)*; Wauconda Sand & Gravel, IL (V); Bayou Bonfouca, LA (VI); Bio-Ecology Systems, TX (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); Triangle Chem., TX (VI); United Creosoting, TX (VI); Aidex-IRM, IA (VII); Aidex, IA (VII)*; Des Moines TCE, IA (VII); Ellisville, MO (VII); Ellisville Site Area, MO (VII)*; Times Beach, MO (VII); Denver Radium/ROBCO, CO (VIII); Libby Ground Water, MT (VIII); Milltown, MT (VIII); Milltown-S, MT (VIII); Smuggler Mountain, CO (VIII); Union Pacific, WY (VIII); Woodbury Chemical, CO (VIII); Celtor Chemical Works, CA (IX); Celtor Chemical, CA (IX)*; Del Norte, CA (IX); Jibboom Junkyard, CA (IX); McColl, CA (IX); Mountain View/Globe, AZ (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits, CA (IX)*; Taputimu Farm, AS (IX); Ponders Corner-IRM, WA (X); Ponders Corner, WA (X)*; South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*; United Chrome, OR (X); Western Processing, WA (X); Western Processing, WA (X)*

Surface Water

Auburn Road, NH (I); Beacon Heights, CT (I); Cannon/Plymouth, MA (I); Hocomonco Pond, MA (I); McKin-IRM, ME (I); Nyanza Chemical, MA (I); Re-Solve, MA (I); Sylvester, NH (I); Tinkham Garage, NH (I); Brewster Well Field, NY (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Hudson River, NY (II); Krysowaty Farm, NJ (II); Lipari Landfill, NJ (II); Lone Pine Landfill, NJ (II); Love Canal, NY (II); Marathon Battery, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II)*; Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Army Creek Landfill, DE (III); Bruin Lagoon, PA (III); Chisman Creek, VA (III); Douglassville, PA (III); Drake Chemical, PA (III); Enterprise Avenue, PA (III); Fischer & Porter PA (III); Harvey-Knott, DE (III); Heleva Landfill, PA (III); Lackawanna Refuse Site, PA (III); Limestone Road, MD (III); McAdoo Associates, PA (III)*; Millcreek, PA (III); Moyer Landfill, PA (III); Sand, Gravel & Stone, MD (III); Taylor Borough, PA (III);

*Second Record of Decision
S: Supplemental Record of Decision
EDD: Enforcement Decision Document

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

KEY WORDS
(By Category)

ASSOCIATED ROD SITES
Site, State (Region)

Contaminated Media

Tyson's Dump, PA (III); Westline, PA (III); Gallaway Ponds, TN (IV); Pioneer Sand, FL (IV); Sapp Battery, FL (IV); Whitehouse Waste Oil Pits, FL (IV); A&F Materials-EDD, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Berlin & Farro, MI (V); Burrows Sanitation, MI (V); Chem-Dyne-EDD, OH (V); Laskin/Poplar Oil, OH (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Wauconda Sand & Gravel, IL (V); Bio-Ecology Systems, TX (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); MOTCO, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); Tar Creek, OK (VI); Libby Ground Water, MT (VIII); Marshall Landfill, CO (VIII); Smuggler Mountain, CO (VIII); Celtor Chemical Works, CA (IX); Celtor Chemical, CA (IX)*; Iron Mountain Mine, CA (IX); McColl, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Stringfellow Acid Pits, CA (IX)*; Western Processing, WA (X)*

Wetlands

Hocomonco Pond, MA (I); Industri-plex, MA (I); Nyanza Chemical, MA (I); Tinkham Garage, NH (I); Bog Creek Farm, NJ (II); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Combe Fill South Landfill, NJ (II); Helen Kramer, NJ (II); PAS Oswego, NY (II); Wide Beach, NY (II); Chisman Creek, VA (III); Harvey-Knott, DE (III); Millcreek, PA (III); Westline, PA (III); Arrowhead Refinery, MN (V); Burrows Sanitation, MI (V); Reilly Tar & Chemical-EDD, MN (V); Schmalz Dump, WI (V); Old Inger, LA (VI); Tar Creek, OK (VI)

Woods

Tinkham Garage, NH (I); Lansdowne Radiation, PA (III); Old Inger, LA (VI)

Public Health and Environmental Threats

Direct Contact

Industri-plex, MA (I); Winthrop Landfill-EDD, ME (I); Hudson River, NY (II); Love Canal, NY (II); Pijak Farm, NJ (II); Spence Farm, NJ (II); Forest Waste-IRM, MI (V)

Public Exposure

Burnt Fly Bog, NJ (II); Love Canal, NY (II); Metaltec/Aerosystems, NJ (II); Lansdowne Radiation, PA (III); Millcreek, PA (III); Verona Well Field-IRM, MI (V); McColl, CA (IX)

Remedy Selection

Consent Decree

Winthrop Landfill-EDD, ME (I); Hyde Park-EDD, NY (II); Fischer & Porter, PA (III); A&F Materials Company-EDD, IL (V); Chem-Dyne-EDD, OH (V); Reilly Tar & Chemical-EDD, MN (V)

Deed Restriction

Winthrop Landfill-EDD, ME (I); Friedman Property, NJ (II); Chisman Creek, VA (III); Arcanum Iron & Metal, OH (V); Lake Sandy Jo, IN (V); Morris Arsenic, MN (V); Reilly Tar & Chemical-EDD, MN (V); South Tacoma Channel-Well 12A, WA (X)*; Western Processing, WA (X)*

Fund Balancing

Outboard Marine Corp., IL (V); Iron Mountain Mine, CA (IX)

No Action Remedy

Friedman Property, NJ (II); Middletown Road, MD (III); Taylor Borough, PA (III)*; Varsol Spill, FL (IV); Morris Arsenic, MN (V); Cecil Lindsey, AR (VI); Toftdahl Drum, WA (X)*

O & M

Auburn Road, NH (I); Baird & McGuire, MA (I); Industri-plex, MA (I); Kellogg-Deering Well Field, CT (I); Re-Solve, MA (I); Tinkham

Remedy Selection

Garage, NH (I); Winthrop Landfill-EDD, ME (I); Brewster Well Field, NY (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); Hyde Park-EDD, NY (II); Kentucky Avenue Wellfield, KY (II); Krysowaty Farm, NJ (II); Lang Property, NJ (II); Love Canal, NY (II); Marathon Battery, NY (II); Metaltec/Aerosystems, NJ (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II); Price Landfill, NJ (II)*; Rockaway Borough Wellfield, NJ (II); Sharkey Landfill, NJ (II); Spence Farm, NJ (II); Syncon Resins, NJ (II); Vestal, NY (II); Army Creek Landfill, DE (III); Blosenski Landfill, PA (III); Bruin Lagoon, PA (III); Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Drake Chemical, PA (III); Heleva Landfill, PA (III); Lansdowne Radiation, PA (III)*; Limestone Road, MD (II); Matthews Electroplating, VA (III); Millcreek, PA (III); Tybouts Corner Landfill, DE (II); Distler Brickyard, KY (IV); Distler Farm, KY (IV); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Pioneer Sand, FL (IV); SCRDI Dixiana, SC (IV); Sapp Battery, FL (IV); A.L. Taylor, KY (IV); Whitehouse Waste Oil Pits, FL (IV); A&F Materials-EDD, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Burrows Sanitation, MI (V); Byron/Johnson Salvage Yard, IL (V); Byron Salvage Yard, IL (V)*; Charlevoix, MI (V); Chem-Dyne-EDD, OH (V); Eau Claire-IRM, WI (V); Lake Sandy Jo, IN (V); Old Mill, OH (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Seymour, IN (V); Verona Well Field-IRM, MI (V); Bio-Ecology Systems, TX (VI); Geneva Industries, TX (VI); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); Tar Creek, OK (VI); United Creosoting, TX (VI); Aidex, IA (VII)*; Des Moines TCE, IA (VII); Ellisville Site Area, MO (VII)*; Arsenic Trioxide, ND (VIII); Denver Radium/ROBCO, CO (VIII); Libby Ground Water, MT (VIII); Milltown, MT (VIII); Smuggler Mountain, CO (VIII); Union Pacific, WY (VIII); Iron Mountain Mine, CA (IX); San Gabriel/Area I, CA (IX); Stringfellow Acid Pits, CA (IX)*; Ponders Corner-IRM, WA (X); South Tacoma Channel-Well 12A, WA (X)*; Toftdahl Drum, WA (X); United Chrome, OR (X); Western Processing, WA (X)*

ROD Addendum

Sylvester, NH (I); Milltown, MT (VIII)

Temporary Remedial Measure

Hudson River, NY (II); Byron Salvage Yard, IL (VI)*; Denver Radium/ROBCO, CO (VIII); Union Pacific, WY (VIII)

Water Supply

Alternate Water Supply

Auburn Road, NH (I); Charles George, MA (I); Winthrop Landfill-EDD, ME (I); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); Krysowaty Farm, NJ (II); Bridgeport, NJ (II); Caldwell Trucking, NJ (II); Kentucky Avenue Wellfield, NY (II); Metaltec/Aerosystems, NJ (II); Olean Well Field, NY (II); Price Landfill, NJ (II); Blosenski Landfill, PA (III); Chisman Creek, VA (III); Fischer & Porter, PA (III); Industrial Lane, PA (III); Matthews Electroplating, VA (III); Acme Solvents, IL (V); Arrowhead Refinery, MN (V); Byron Salvage Yard, IL (V)*; Charlevoix, MI (V); Eau Claire-IRM, WI (V); Kummer

*Second Record of Decision

S: Supplemental Record of Decision

EDD: Enforcement Decision Document

**KEY WORDS
(By Category)**

**ASSOCIATED ROD SITES
Site, State (Region)**

**KEY WORDS
(By Category)**

**ASSOCIATED ROD SITES
Site, State (Region)**

Water Supply

Landfill, MN (V); Lake Sandy Jo, IN (V); New Brighton/Arden Hills/St. Anthony, MN (V); New Brighton-Water Supply System, MN (V); Old Mill, OH (V); Reilly Tar, MN (V); Verona Well Field-IRM, MI (V); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); South Valley-IRM, NM (VI); Arsenic Trioxide, ND (VIII); Libby Ground Water, MT (VIII); Milltown, MT (VIII); Smuggler Mountain, CO (VIII)

**Drinking Water
Contaminants**

Auburn Road, NH (I); Kellogg-Deering Well Field, CT (I); Brewster Well Field, NY (II); Caldwell Trucking, NJ (II); Combe Fill South Landfill, NJ (II); Kentucky Avenue Wellfield, NY (II); Metaltec/Aerosystems, NJ (II); Rockaway Borough Wellfield, NJ (II); Vestal, NY (II); Blosenski Landfill, PA (III); Chisman Creek, VA (III); Fischer & Porter, PA (III); Industrial Lane, PA (III); Hipps Road Landfill, FL (IV); Arrowhead Refinery, MN (V); Byron Johnson Salvage Yard, IL (V)*; Eau Claire-IRM, WI (V); Lake Sandy Jo, IN (V); Main St. Wellfield, IN (V); Reilly Tar & Chemical-EDD, MN (V); Verona Well Field-IRM, MI (V); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); South Valley-IRM, NM (VI); Des Moines TCE, IA (VII); Arsenic Trioxide, ND (VIII); Libby Ground Water, MT (VIII); Smuggler Mountain, CO (VIII)

**Site-Specific
Characteristics**

Flood Plain

Baird & McGuire, MA (I); Tinkham Garage, NH (I); Florence Landfill, NJ (II); Helen Kramer, NJ (II); Sharkey Landfill, NJ (II); Bruin Lagoon, PA (III)*; Drake Chemical, PA (III); Distler Brickyard, KY (IV); Hipps Road Landfill, FL (IV); A&F Materials-EDD, IL (V); A&F Materials-IRM, IL (V); Bayou Bonfouca, LA (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Sikes Disposal Pits, TX (VI); Triangle Chemical, TX (VI); Celtor Chemical, CA (IX)*

Seismic

McCull, CA (IX)

Sole-Source Aquifer

Price Landfill, NJ (II); Rockaway Borough Wellfield, NJ (II); Biscayne Aquifer Sites, FL (IV); Pioneer Sand, FL (IV)

Subsidence

McAdoo Associates, PA (III)*; Taylor Borough, PA (II); Wauconda Sand & Gravel, IL (V); Highlands Acid Pit, TX (VI)

**Standard/
Regulations/
Permits/Guidance**

**Drinking Water
Standards**

Rockaway Borough Wellfield, NJ (II); Coleman Evans, FL (IV); Old Inger, LA (VI); Burrows Sanitation, MI (VI); South Valley-IRM, NM (VI); Milltown, MT (VIII); United Chrome, OR (X)

**Institutional
Controls**

Beacon Heights, CT (I); Winthrop Landfill-EDD, ME (I); Friedman Property, NJ (II); Marathon Battery, NY (II); Olean Well Field, NY (II); Marathon Battery, NY (II); Olean Well Field, NY (II); Chisman Creek, VA (III); Industrial Lane, PA (III); Tybouts

**Standard/
Regulations/
Permits/Guidance**

**Public Health
Advisory**

Corner, DE (III); Biscayne Aquifer Sites, FL (IV); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Pepper's Steel-EDD, FL (IV); Sapp Battery, FL (IV); A&F Materials-EDD, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Charlevoix, MI (V)*; Lake Sandy Jo, IN (V); Old Mill, OH (V); Reilly Tar & Chemical-EDD, MN (V); Odessa Chromium I, TX (VI); Odessa Chromium II, TX (VI); Old Inger, LA (VI); United Creosoting, TX (VI); Arsenic Trioxide, ND (VIII); Denver Radium Site Streets, CO (VIII); Libby Ground Water, MT (VIII); Ponders Corner, WA (X)*; South Tacoma Channel-Well 12A, WA (X)*; Western Processing, WA (X)*

Lansdowne Radiation, PA (III)

RCRA

Western Sand & Gravel, RI (I); Love Canal, NY (II); PAS Oswego, NY (II); Biscayne Aquifer Sites, FL (IV); Arcanum Iron & Metal, OH (V); Burrows Sanitation, MI (V); Old Mill, OH (V); Aidex, IA (VII)*; Ellisville Site Area, MO (VII)*; Ponders Corner, WA (X)*

**RCRA Closure
Requirements**

Winthrop Landfill-EDD, ME (I); Bridgeport, NJ (II); Combe Fill North Landfill, NJ (II); Army Creek Landfill, DE (III); Blosenski Landfill, PA (III); Enterprise Avenue, PA (III); Moyer Landfill, PA (III); Tyson's Dump, PA (III); Gallaway Ponds, TN (IV); Pioneer Sand, FL (IV); Lake Sandy Jo, IN (V); South Tacoma, WA (X); Western Processing, WA (X)*

**RCRA Landfill
Specifications**

Picillo Farm, RI (I); Caldwell Trucking, NJ (II); Lang Property, NJ (II); Sharkey Landfill, NJ (II); Drake Chemical, PA (III); Tyson's Dump, PA (III); American Creosote, FL (IV); Pioneer Sand, FL (IV); Spiegelberg Landfill, MI (V); Bio-Ecology Systems, TX (VI); Western Processing, WA (X)*

**RCRA Locational
Requirements**

Tyson's Dump, PA (III); Berlin & Farro, MI (V)

State Criteria

Brewster Well Field, NY (II); Bridgeport, NJ (II); D'Imperio Property, NJ (II); Goose Farm, NJ (II); Kentucky Avenue Wellfield, NY (II); Metaltec/Aerosystems, NJ (II); Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Swope Oil, NJ (II); Coleman Evans, FL (IV); Hipps Road Landfill, FL (IV); SCRDI Dixiana, SC (IV); A&F Materials-EDD, IL (V); Reilly Tar & Chemical-EDD, MN (V); Ellisville Site Area, MO (VII)*; Union Pacific, WY (VIII); Iron Mountain Mine, CA (IX); South Tacoma, WA (X)

State Permit

D'Imperio Property, NJ (II); Goose Farm, NJ (II); Army Creek Landfill, DE (III); Verona Well Field-IRM, MI (V)

**TSCA Onsite
Disposal
Requirements**

Picillo Farm, RI (I); Kryswaty Farm, NJ (II); Mowbray Engineering, AL (IV); Fields Brook, OH (V)

**Water Quality
Criteria**

Lipari Landfill, NJ (II)*; Army Creek Landfill, DE (III); Coleman Evans, FL (IV); New Brighton-Water Supply System, MN (V); Verona Well Field-IRM, MI (V)

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KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)	KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)
Testing/Pilot Studies		Technology	
Leachability Tests	Re-Solve, MA (I)		Krysowaty Farm, NJ (II); Lang Property, NJ (II); Love Canal, NY (II); Metaltec/Aerosystems, NJ (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Wide Beach, NY (II); Blossenski Landfill, PA (III); Douglassville, PA (III); Drake Chemical, PA (III); Leetown Pesticide, WV (III); Lansdowne Radiation, PA (III)*; Lehigh Electric, PA (III); McAdoo-IRM, PA (III); McAdoo Associates, PA (III)*; Millcreek, PA (III); Sand, Gravel & Stone, MD (III); Taylor Borough, PA (III); Tyson's Dump, PA (III); Tybouts Corner, DE (III); Westline, PA (III); American Creosote, FL (IV); Coleman Evans, FL (IV); Distler Brickyard, KY (IV); Distler Farm, KY (IV); Gallaway Ponds, TN (IV); Hollingsworth, FL (IV); Miami Drum Services, FL (IV); Mowbray Engineering, AL (IV); Sapp Battery, FL (IV); A&F Materials-EDD, IL (V); Acme Solvents, IL (V); Arcanum Iron & Metal, OH (V); Arrowhead Refinery, MN (V); Bertin & Farro, MI (V); Burrows Sanitation, MI (V); Byron/Johnson Salvage, IL (V); Cemetery Dump, MI (V); Chem-Dyne-EDD, OH (V); Cross Bros., IL (V); Forest Waste, MI (V); Lake Sandy Jo, IN (V); LaSalle Electrical, IL (V); Northernaire, MI (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Schmalz Dump, WI (V); Bayou Bonfouca, LA (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Old Inger, LA (VI); Sikes Disposal Pits, TX (VI); United Creosoting, TX (VI); Aidex, IA (VII)*; Ellisville, MO (VII); Ellisville Site Area, MO (VII)*; Times Beach, MO (VII); Denver Radium/ROBCO, CO (VIII); Denver Radium Site Streets, CO (VIII); Smuggler Mountain, CO (VIII); Woodbury Chemical, CO (VIII); Celtor Chemical Works, CA (IX); Celtor Chemical, CA (IX)*; Del Norte, CA (IX); Jibboom Junkyard, CA (IX); McColl, CA (IX); Ponders Corner, WA (X)*; Queen City Farms-IRM/EDD, WA (X); South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*; United Chrome, OR (X); Western Processing, WA (X)*
Treatability Studies	Winthrop Landfill-EDD, ME (I); Leetown Pesticide, WV (IV); Arcanum Iron & Metal, OH (V); Old Inger, LA (VI)		
Technology			
Aeration	McKin, ME (I); Hollingsworth, FL (IV); Triangle Chem., TX (VI)		
Air Stripping	Industri-plex, MA (I); Kellogg-Deering Well Field, CT (I); Brewster Well Field, NY (II); Caldwell Trucking, NJ (II); Lang Property, NJ (II); Olean Well Field, NY (II); Vestal, NY (II); Price Landfill, NJ (II)*; Tyson's Dump, PA (III); Biscayne Aquifer Sites, FL (IV); Hollingsworth, FL (IV); Eau Claire-IRM, WI (V); LeHillier/Mankato, MN (V); Main St. Wellfield, IN (V); Seymour, IN (V); Verona Well Field-IRM, MA (V); Verona Well Field, MI (V)*; Des Moines TCE, IA (VII); Marshall Landfill, CO (VIII); San Gabriel/Area 1, CA (IX); Ponders Corner-IRM, WA (X); Ponders Corner, WA (X)*; South Tacoma, WA (X); South Tacoma Channel-Well 12A, WA (X)*		
Capping	Beacon Heights, CT (I); Charles George, MA (I)*; Hocomonco Pond, MA (I); Industri-plex, MA (I); Nyanza Chemical, MA (I); Re-Solve, MA (I); Sylvester, NH (I); Winthrop Landfill-EDD, ME (I); Bog Creek Farm, NJ (II); Combe Fill North Landfill, NJ (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); Florence Landfill, NJ (II); GEMS Landfill, NJ (II); Goose Farm, NJ (II); Helen Kramer, NJ (II); Lipari Landfill, NJ (II); PAS Oswego, NY (II); Sharkey Landfill, NJ (II); Sinclair Refinery, NY (II); Swope Oil, NJ (II); Army Creek Landfill, DE (III); Blossenski Landfill, PA (III); Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Douglassville, PA (III); Drake Chemical, PA (III); Enterprise Avenue, PA (III); Heleva Landfill, PA (III); Lackawanna Refuse Site, PA (III); Limestone Road, MD (III); Matthews Electroplating, VA (III); McAdoo Associates, PA (III)*; Millcreek, PA (III); Moyer Landfill, PA (III); Tybouts Corner, DE (III); Tyson's Dump, PA (III); Wade, PA (III); Davie Landfill, FL (IV); Hippos Road Landfill, FL (IV); A.L. Taylor, KY (IV); Whitehouse Waste Oil Pits, FL (IV); Chem-Dyne-EDD, OH (V); New Lyme, OH (V); Bio-Ecology Systems Site, TX (VI); Geneva Industries, TX (VI); Old Inger, LA (VI); United Creosoting, TX (VI); Aidex, IA (VII)*; Smuggler Mountain, CO (VIII); Iron Mountain Mine, CA (IX); Mountain View/Globe, AZ (IX); Queen City Farms-IRM/EDD, WA (X); South Tacoma, WA (X); Western Processing, WA (X)*		
Containment	Hudson River, NY (II); Lipari Landfill, NJ (II)*; Drake Chemical, PA (III); New Lyme, OH (V); Outboard Marine Corp., IL (V); Times Beach, MO (VII)	Filling	Lehigh Electric, PA (III); Taylor Borough, PA (III); Wade, PA (III); Coleman Evans, FL (IV); A&F Materials-EDD, IL (V); Tar Creek, OK (VI); Woodbury Chemical, CO (VIII)
Dredging	Hocomonco Pond, MA (I); Hudson River, NY (II); Love Canal, NY (II); Marathon Battery, NY (II); Outboard Marine Corp., IL (V); Tar Creek, OK (VI)	Granular Activated Carbon	Rockaway Borough Wellfield, NJ (II); New Brighton-Interim Water Treatment, MN (V); New Lyme, OH (V); Reilly Tar, MN (V); Reilly Tar & Chemical-EDD, MN (V); Old Inger, LA (VI); San Gabriel/Area 1, CA (IX); Stringfellow Acid Pits, CA (IX)*
Excavation	Baird & McGuire, MA (I); Beacon Heights, CT (I); Hocomonco Pond, MA (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Tinkham Garage, NH (I); Bog Creek Farm, NJ (II); Bridgeport, NJ (II); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); D'Imperio Property, NJ (II); Helen Kramer, NJ (II);	Ground Water Monitoring	Auburn Road, NH (I); Baird & McGuire, MA (I); Beacon Heights, CT (I); Hocomonco Pond, MA (I); Industri-plex, MA (I); Kellogg-Deering Well Field, CT (I); McKin, ME (I); Nyanza Chemical, MA (I); Picillo Farm, RI (I); Tinkham Garage, NH (I); Winthrop Landfill-EDD, ME (I); Burnt Fly Bog, NJ (II); Caldwell Trucking, NJ (II); Friedman Property, NJ (II); Hyde Park-EDD, NY (II); Kentucky Avenue Wellfield, NY (II); Krysowaty Farm, NJ (II); Metaltec/Aerosystems, NJ (II); PAS Oswego, NY (II); Pijak Farm, NJ (II); Price Landfill, NJ (II)*; Army Creek Landfill, DE (III); Blossenski Landfill, PA (III); Bruin Lagoon, PA (III)*; Chisman Creek, VA (III); Drake Chemical, PA (III); Limestone Road, MD (III); Millcreek,

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KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)	KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)		
<u>Technology</u>	PA (III); Moyer Landfill, PA (III); Taylor Borough, PA (III)*; Tybouts Corner, DE (III); Gallaway Ponds, TN (IV); Hipps Road Landfill, FL (IV); Pepper's Steel-EDD, FL (IV); Pioneer Sand, FL (IV); Sapp Battery, FL (IV); A&F Materials-EDD, IL (V); Arcanum Iron & Metal, OH (V); Burrows Sanitation, MI (V); Byron Salvage Yard, IL (V)*; Lake Sandy Jo, IN (V); New Lyme, OH (V); Novaco Industries, MI (V); Reilly Tar & Chemical-EDD, MN (V); Bio-Ecology Systems, TX (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); Sikes Disposal Pits, TX (VI); Aidex, IA (VII)*; Ellisville Site Area, MO (VII)*; Arsenic Trioxide, ND (VIII); Marshall Landfill, CO (VIII); Smuggler Mountain, CO (VIII); Union Pacific, WY (VIII); Woodbury Chemical, CO (VIII); Queen City Farms-IRM/EDD, WA (X); Toftdahl Drum, WA (X)	<u>Technology</u>	Baird & McGuire, MA (I); Douglassville, PA (II); Old Inger, LA (VI)		
Ground Water Treatment	Baird & McGuire, MA (I); Industri-plex, MA (I); Kellogg-Deering Well Field, CT (I); McKin, ME (I); Sylvester, NH (I); Sylvester-S, NH (I); Tinkham Garage, NH (I); Winthrop Landfill-EDD, ME (I); Brewster Well Field, NY (II); Combe Fill South Landfill, NJ (II); D'Imperio Property, NJ (II); GEMS Landfill, NJ (II); Goose Farm, NJ (II); Helen Krarr er, NJ (II); Hyde Park-EDD, NY (II); Lang Property, NJ (II); Lipari Landfill, NJ (II)*; Olean Well Field, NY (II); PAS Oswego, NY (II); Price Landfill, NJ (II)*; Rockaway Borough Wellfield, NJ (II); Sharkey Landfill, NJ (II); Syncon Resins, NJ (II); Vestal, NY (II); Blosenski Landfill, PA (III); Harvey-Knott, DE (III); Heleva Landfill, PA (III); Leetown Pesticide, WV (III); Millcreek, PA (III); Tybouts Corner, DE (III); Coleman Evans, FL (IV); Distler Brickyard, KY (IV); Hipps Road Landfill, FL (IV); Hollingsworth, FL (IV); SCRDI Dixiana, SC (IV); Sapp Battery, FL (IV); Whitehouse Waste Oil Pits, FL (IV); Arrowhead Refinery, MN (V); Chem-Dyne-EDD, OH (V); LeHillier/Mankato, MN (V); New Lyme, OH (V); Novaco Industries, MI (V); Old Mill, OH (V) Seymour, IN (V); Verona Well Field, MI (V)*; Geneva Industries, TX (VI); Des Moines TCE, IA (VII); Marshall Landfill, CO (VIII); Union Pacific, WY (VIII); Del Norte, CA (IX); Ponders Corner, WA (X)*; South Tacoma Channel-Well 12A, WA (X)*; United Chrome, OR (X); Western Processing, WA (X)*	Levees	Baird & McGuire, MA (I); Douglassville, PA (II); Old Inger, LA (VI)		
Incineration	Baird & McGuire, MA (I); Bog Creek Farm, NJ (II); Bridgeport, NJ (II); Hyde Park-EDD, NY (II); Swope Oil, NJ (II); Drake Chemical, PA (III); Lackawanna Refuse Site, PA (III); Westline, PA (III); Coleman Evans, FL (IV); Mowbray Engineering, AL (IV); Acme Solvents, IL (V); Arrowhead Refinery, MN (V); Berlin & Farro, MI (V); Fields Brook, OH (V); LaSalle Electrical, IL (V); Laskin/Poplar Oil, OH (V); Metamora Landfill, MI (V); Spiegelberg Landfill, MI (V); MOTCO, TX (VI); Sikes Disposal Pits, TX (VI); Triangle Chem., TX (VI); Woodbury Chemical, CO (VIII); Western Processing, WA (X)	Offsite Disposal	Cannon/Plymouth, MA (I); Keefe Environmental, NH (I); McKin-IRM, ME (I); McKin, ME (I)*; Re-Solve, MA (I); Burnt Fly Bog, NJ (II); Chemical Control, NJ (II); D'Imperio Property, NJ (II); Krysowaty Farm, NJ (II); Lang Property, NJ (II); Marathon Battery, NY (II); Metaltec/Aerosystems, NJ (II); Pijak Farm, NJ (II); Price Landfill, NJ (II)*; Spence Farm, NJ (II); Swope Oil, NJ (II); Syncon Resins, NJ (II); Bruin Lagoon, PA (II); Enterprise Avenue, PA (III); Harvey-Knott, DE (III); Lackawanna Refuse Site, PA (III); Lansdowne Radiation, PA (III)*; Leetown Pesticide, WV (III); Lehigh Electric, PA (III); McAdoo-IRM, PA (III); McAdoo Associates, PA (III)*; Sand, Gravel & Stone, MD (III); Taylor Borough, PA, (III); Westline, PA (III); Distler Brickyard, KY (IV); Miami Drum Services, FL (IV); Pepper's Steel-EDD, FL (IV); SCRDI Dixiana, SC (IV); A&F Materials-IRM, IL (V); A&F Materials-EDD, IL (V); Acme Solvents, IL (V); Arcanum Iron & Metal, OH (V); Berlin & Farro, MI (V); Burrows Sanitation, MI (V); Byron/Johnson Salvage Yard, IL (V); Cemetery Dump, MI (V); Chem-Dyne-EDD, OH (V); Cross Bros., IL (V); Forest Waste, MI (V)*; Northernaire, MI (V); Old Mill, OH (V); Outboard Marine Corp., IL (V); Schmalz Dump, WI (V); Wauconda Sand & Gravel, IL (V); Bayou Bonfouca, LA (VI); Cecil Lindsey, AR (VI); Geneva Industries, TX (VI); Highlands Acid Pit, TX (VI); MOTCO, TX (VI); Triangle Chem., TX (VI); Aidex-IRM, IA (VII); Aidex, IA (VII)*; Ellisville, MO (VII); Ellisville Site Area, MO (VII)*; Denver Radium/ROBCO, CO (VIII); Denver Radium Site Streets, CO (VIII); Woodbury Chemical, CO (VIII); Celtor Chemical Works, CA (IX); Celtor Chemical, CA (IX)*; Del Norte CA (IX); Jibboom Junkyard, CA (IX); McColl, CA (IX); Stringfellow Acid Pits-IRM, CA (IX); Ponders Corner, WA (X)*; Queen City Farms-IRM/EDD, WA (X); South Tacoma Channel-Well 12A, WA (X)*; United Chrome, OR (X); Western Processing, WA (X); Western Processing, WA (X)*	Onsite Containment	Re-Solve, MA (I); Enterprise Avenue, PA (III); Millcreek, PA (III); Davie Landfill, FL (IV); Lake Sandy Jo, IN (V); New Lyme, OH (V); Outboard Marine Corp., IL (V); Bio-Ecology Systems, TX (VI); United Creosoting, TX (VI); Ellisville Site Area, MO (VII)*; Times Beach, MO (VII); Denver Radium/ROBCO, CO (VIII); Western Processing, WA (X)*
Land Treatment	Old Inger, LA (VI)	Onsite Disposal	Hocomonco Pond, MA (I); Picillo Farm, RI (I); Tinkham Garage, NH (I); Caldwell Trucking, NJ (II); Love Canal, NY (II); Drake Chemical, PA (III); Enterprise Avenue, PA (III); American Creosote, FL (IV); Gallaway Ponds, TN (IV); SCRDI Dixiana, SC (IV); Sapp Battery, FL (IV); Arcanum Iron & Metal, OH (V); LaSalle Electrical, IL (V); Sikes Disposal Pits, TX (VI); Aidex, IA (VII)*; Smuggler Mountain, CO (VIII); Mountain View/Globe, AZ (IX); Western Processing, WA (X)*		
Leachate Collection/Treatment	Beacon Heights, CT (I); Charles George, MA (I)*; Picillo Farm, RI (I); Combe Fill South Landfill, NJ (II); GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Lipari Landfill, NJ (II)*; Price Landfill, NJ (II)*; Moyer Landfill, PA (III); Pioneer Sand, FL (IV); New Lyme, OH (V); Wauconda Sand & Gravel, IL (V); United Chrome, OR (X)	Relocation	Lansdowne Radiation, PA (III); Lansdowne Radiation, PA (III)*; United Creosoting, TX (VI); Times Beach, MO (VII); Mountain View/Globe, AZ (IX)		
		Plume Management	Hyde Park-EDD, NY (II); Price Landfill, NJ (II); Burrows Sanitation, MI (V); Seymour, IN (V); Verona Well Field-IRM, MI (V)		

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KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)	KEY WORDS (By Category)	ASSOCIATED ROD SITES Site, State (Region)
Technology		Technology	
Publicly Owned Treatment Works (POTW)	Tinkham Garage, NH (I); GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Lipari Landfill, NJ (II)*; Tybouts Corner, DE (III); Seymour, IN (V); Del Norte, CA (IX); Stringfellow Acid Pits, CA (IX)*; Western Processing, WA (X)*	Venting	Acid Pits, CA (IX)*; United Chrome, OR (X); Western Processing, WA (X)* Beacon Heights, CT (I); Charles George, MA (I)*; GEMS Landfill, NJ (II); Helen Kramer, NJ (II); Heleva Landfill, PA (III); Moyer Landfill, PA (III); New Lyme, OH (V)
Slurry Wall	Sylvester, NH (I); Florence Landfill, NJ (II); Helen Kramer, NJ (II); Lipari Landfill, NJ (II); Lone Pine Landfill, NJ (II); PAS Oswego, NY (II); Whitehouse Waste Oil Pits, FL (IV); Geneva Industries, TX (VI); Union Pacific, WY (VIII)	Miscellaneous	
Solidification	Mowbray Engineering, AL (IV); Pepper's Steel, FL (IV); Sapp Battery, FL (IV); Fields Brook, OH (V); Forest Waste, MI (V)*; Burrows Sanitation, MI (V); Queen City Farms, WA (X)	Municipally Owned Site	Winthrop Landfill-EDD, ME (I); Rockaway Borough Wellfield, NJ (II); Army Creek Landfill, DE (III); Enterprise Avenue, PA (III); Denver Radium Site Streets, CO (VIII)
Stabilization	Re-Solve, MA (I); Marathon Battery, NY; Bruin Lagoon, PA (III); Bruin Lagoon, PA (III)*; Pepper's Steel-EDD, FL (IV); Denver Radium/ROBCO, CO (VIII); Queen City Farms-IRM/EDD, WA (X)	Historically Significant	
Surface Water Diversion/Collection	Charles George, MA (I)*; McKin, ME (I)*; Nyanza Chemical, MA (I); Blosenski Landfill, PA (III); Harvey-Knott, DE (III); Heleva Landfill, PA (III); Leetown Pesticide, WV (III); Moyer Landfill, PA (III); Taylor Borough, PA (III); Queen City Farms-IRM/EDD, WA (X)	ACL	Sylvester, NH (I); Western Sand & Gravel, RI (I); Winthrop Landfill-EDD, ME (I); Bog Creek Farm, NJ (II); D'Imperio Property, NJ (II); Goose Farm, NJ (II); Blosenski Landfill, PA (III); Harvey-Knott, DE (III); SCRDI Dixiana, SC (IV); Highlands Acid Pit, TX (VI); Aidex, IA (VII)*; Old Mill, OH (V); Western Processing, WA (X)*
Treatment Technology	Baird & McGuire, MA (I); Tinkham Garage, NH (I); Bog Creek Farm, NJ (II); Bridgeport, NJ (II); Caldwell Trucking, NJ (II); Goose Farm, NJ (II); Syncon Resins, NJ (II); Wide Beach, NY (II); Bruin Lagoon, PA (III)*; Leetown Pesticide, WV (III); Coleman Evans, FL (IV); Mowbray Engineering, AL (IV); Pepper's Steel-EDD, FL (IV); Sapp Battery, FL (IV); Arrowhead Refinery, MN (V); Burrows Sanitation, MI (V); Forest Waste, MI (V)*; LaSalle Electrical, IL (V); MOTCO, TX (VI); Sikes Disposal Pits, TX (VI); Triangle Chemical, TX (VI); Stringfellow	Background Levels	Nyanza Chemical, MA (I); Industrial Lane, PA (III); Sand, Gravel & Stone, MD (III); Taylor Borough, PA (III); Distler Brickyard, KY (IV); Distler Farm, KY (IV); Reilly Tar, MN (V); Triangle Chemical, TX (VI); Aidex, IA (VI)*; Arsenic Trioxide, ND (VIII); Toftdahl Drum, WA (X)
		Deferred Decision	Cannon/Plymouth, MA (I); Lipari Landfill, NJ (II)*; Swope Oil, NJ (II); Douglassville, PA (III); McAdoo Associates, PA (III)*; Taylor Borough, PA (III); Tyson's Dump, PA (III); American Creosote, FL (IV); Davie Landfill, FL (IV); New Brighton/Arden Hills/St. Anthony, MN (V); Bayou Bonfouca, LA (VI); Ponders Corner, WA (X)*; South Tacoma Channel-Well 12A, WA (X)*

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ROD SUMMARIES

OTTATI & GOSS REGION I NEW HAMPSHIRE (Approved 1/16/87)

Description:

- Portions of this 35-acre site have been used for drum reconditioning since the late 1950s. Caustic rinses were disposed in dry wells or in leaching pits. Floor washings were discharged to surface waters. Between 1980 and 1982, EPA processed and removed about 4,000 drums of waste from the site. In 1984, one of the site owners removed drums and portions of the site where drum burial was suspected. The total volume of soils, drums, and metal debris removed was about 12,800 tons. Results from the RI completed in 1986 indicated that contaminated soil, surface water, sediments, and crushed drums remain on site. VOCs, ABNs, PCBs, pesticides, metals, and cyanides are present. On-site soils are a direct contact risk and are a source of contamination for ground water.

Decision:

- Excavate and incinerate approximately 5,000 cubic yards of soils and sediments contaminated with PCBs above 20 ppm.
- Aerate approximately 14,000 cubic yards of contaminated soils containing VOCs above 1 ppm.
- Extract and treat ground water until aquifer reaches 10^{-5} excess risk level. Treatment will include precipitation, clarification, air stripping, biological treatment, and ion exchange. Discharge to ground water or surface water; an NPDES permit is needed.
- Dispose of contaminated building material.

Contacts:

- Region: Paul Marchessault
FTS 835-3650
- Headquarters: Lisa Carson
FTS 475-9758

WINTHROP LANDFILL REGION I MAINE (Approved 11/22/85)

Description:

- The site consists of two contiguous properties that total about 20 acres. In the 1920s, the site was used as a sand and

gravel pit. In the 1930s, an on-site dump accepted municipal, commercial, and industrial wastes. Wastes were burned until 1972, and landfilling was conducted from 1972 to 1982. More than 3 million gallons of hazardous wastes were dumped at the site from the early 1950s to the mid-1970s. Volatile organic compounds were detected in a nearby residential well in 1980. In 1984, the town of Winthrop installed a permanent alternative water supply. The primary contaminant is VOCs (up to 400 ppm in ground water).

Decision:

- Provide alternative water supply to residences close to the landfill.
- Institute land use restrictions.
- Monitor wetlands and surface water.
- Place a RCRA cap over entire landfill.
- Perform further studies to define geohydrology and ground water treatability and to develop a wetlands mitigation plan.
- Establish ACLs for each contaminant. If ACLs in the ground water are exceeded, extract and treat the ground water.

Contacts:

- Region: Charlotte Head
FTS 835-3643
- Headquarters: Candace Cable
FTS 382-4819

COMBE FILL SOUTH LANDFILL REGION II NEW JERSEY (Approved 9/29/86)

Description:

- This 65-acre site consists of three fill areas. The site is an inactive municipal and industrial landfill that was used for 40 years until it was closed in 1981. Illegal dumping was suspected during the 40 years of operation. A deep, fractured bedrock aquifer under the site is a major source of drinking water for the area. There is a shallow, unconfined aquifer above the bedrock that is often used as a private water source. The RI, completed in 1986, showed that both aquifers and some local wells were contaminated with VOCs. Leachate seeping from the landfill has caused the contamination problem.

Decision:

- Provide an alternative water sup-

ply for affected residences.

- Place a RCRA cap over the landfill.
- Collect and treat landfill gases.
- Extract shallow ground water and treat it and leachate on site; discharge to stream.
- Institute surface water migration controls.
- Conduct another FS for the deep aquifer.

Contacts:

- Region: Kirk Stoddard
FTS 264-7604
- Headquarters: Lisa Feldt
FTS 475-9757

HYDE PARK LANDFILL REGION II NEW YORK (Approved 11/26/85)

Description:

- A chemical corporation disposed of approximately 80,000 tons of chemical wastes at this 15-acre landfill between 1954 and 1975. The landfill is about 1,000 feet from the Niagara River. In 1984, the PRPs submitted a detailed investigation of the site as part of a settlement agreement with EPA. This EDD is the result of negotiations based on that investigation. There are two plumes of ground water contamination at the site—an aqueous phase liquid (APL) plume and a non-aqueous phase liquid (NAPL) plume. Leachate from the site and the APL plume contains benzoic acids, chlorobenzoic acids, chlorendic acid, and phenol. The NAPL plume consists of VOCs, TCDD, and PCBs. Many of the contaminants in the NAPL plume have not been identified.

Decision:

- Extract NAPL from landfill through purge well systems.
- Use purge wells to contain bedrock APL and NAPL plumes. Keep discharge to river below specified levels (to be determined but less than 10^{-6} risk) or develop an alternative remedial action.
- Implement residential monitoring and nearby industrial protection programs.
- Treat all collected aqueous phase liquids via separation, coagulation, powdered activated carbon (PAC), biological, and granular activated carbon (GAC) to at least 10^{-6} cancer risk level.
- Incinerate all NAPL.

Contacts:

- Region: Chris Beling
FTS 264-4183
- Headquarters: Glenn Hardcastle
FTS 382-5617

**BRUIN LAGOON
REGION III
PENNSYLVANIA
(Approved 9/29/86)**

Description:

- A refinery operated on this 4-acre site for approximately 40 years beginning in the 1930s. An earth-diked lagoon was used during this period for the disposal of wastes resulting from the production of mineral oil. An initial RI began in July 1981, and an FS was completed in February 1982. A ROD was signed in 1982 specifying stabilization of lagoon waste and dike, removal of tanks and supernatant, and upgradient run-off control. During the remedial construction, the presence of toxic gases containing high concentrations of carbon dioxide, hydrogen sulfide, and sulfuric acid mist caused all remedial activities to be terminated in May 1984 to initiate an immediate removal action. This emergency action was completed in September 1984, and a second RI/FS was issued in July 1986. The primary findings of this study were the presence of approximately 17,500 cubic yards of sludge contaminated with heavy metals, inorganic contamination of the ground water, and a hot spot that contained potentially hazardous gases in the lagoon.

Decision:

- Use on-site stabilization/neutralization for sludge and perched liquid.
- Provide in-situ treatment for bedrock ground water underneath the former lagoon.
- Reinforce the dike and cap the former lagoon with a multi-layered cap.
- Monitor and maintain the site cap and ground water.

Contacts:

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**DRAKE CHEMICAL
REGION III
PENNSYLVANIA
(Approved 5/13/86)**

Description:

- Drake Chemical, Inc., purchased this 8-acre site in 1962 for a chemical manufacturing facility. There is evidence that lagoons were present on site in the 1950s, but their origin is unknown. There are a wastewater treatment plant, other buildings, lagoons, tanks, and drums on site. There is considerable organic contamination (often percent levels of organic contaminants) of lagoon sediments and buildings. Direct contact with contamination from the buildings is the primary concern.

Decision:

- Excavate and treat liquid and sludge from lagoons off site at RCRA facility.
- Remove all tanks, buildings, and debris. Decontaminate for scrap or dispose at a RCRA facility. Treat decontamination liquid off site at RCRA facility.
- Conduct off-site incineration of chemicals stored in warehouse.

Contacts:

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**WEST VIRGINIA ORDNANCE
WORKS
REGION III
WEST VIRGINIA
(Approved 3/31/87)**

Description:

- The ordnance works site covers about 8,300 acres; one-third of the site is currently a wildlife station. From 1942 to 1945, TNT was produced on site. Production of this material resulted in contamination of the soils of the former industrial area, process facilities, and wastewater disposal facilities. At the close of operations in 1945, the site was decontaminated. It was later declared surplus, and the facilities were salvaged or disposed of. The area was later opened to public hunting and fishing. Small portions of the site were sold. A seepage of red water, one of the liquid wastes produced during the TNT manufacturing process, was observed in 1981, and the resultant ground water sampling by the state and EPA showed DNT and TNT contamination. Soils, surface water, sediments, and shallow ground water are contaminated with nitroaromatics, PAHs, and asbestos. The RI/FS was completed in 1986.

Decision:

- Conduct in-situ flaming of reactive TNT residue on the ground surface.
- Install a soil cover over areas with total nitroaromatic concentrations exceeding 50 ppm to achieve a direct contact cancer risk level of 10^{-6} or less.
- Dispose of asbestos waste in off-site sanitary landfill.
- Excavate, flash, and replace in trenches those sewer lines that have reactive material.
- Conduct a wetlands assessment before construction activities begin.
- Implement a ground water monitoring program consistent with RCRA postclosure requirements.

Contacts:

- Region: Hector Abrew
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- Headquarters: Patty Bubar
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**NEWPORT DUMP
REGION IV
KENTUCKY
(Approved 3/27/87)**

Description:

- This 39-acre former municipal landfill is 250 feet upstream of the intake for a water treatment plant. The landfill/dump was operational from the 1940s to 1979. An RI/FS was completed in 1986. The major concern is leachate migration to nearby surface water bodies. Some leachate collection trenches and berms were installed earlier by the current owner, but they have not been effective. To date, there has been no effect from the site on the river. The landfill contains a variety of inorganic and organic contaminants. Underlying ground water had traces of inorganic contamination. On-site surface waters, sediments, and some soil had low concentrations of inorganics. The existing leachate collection system and clay cap were installed by the owner as a result of a 1980 agreement with the state.

Decision:

- Restore and extend the existing leachate collection system. Either treat the leachate on site or send it to a POTW.
- Restore and regrade clay cap put on by owner. Because of a lack of funding, there was inadequate vegetation, which resulted in cap erosion.

- Implement a surface water, ground water, and landfill gas monitoring program.

Contacts:

- Region: Dennis Manganiello
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- Headquarters: Greg Eckert
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**PEPPER'S STEEL
REGION IV
FLORIDA**
(Approved 3/12/86)

Description:

- Since the mid-1960s, this 30-acre site has been the location of several businesses, some of which are still in operation. Battery manufacturing, equipment repair, and painting services were among the activities on site. As a result of these activities, soils, sediments, and ground water on and near the site are contaminated with PCBs (>50 ppm), lead (up to 98,000 ppm), and arsenic (up to 50 ppm). There is also some organic contamination. The RI/FS began in 1984, and negotiations with the PRPs resulted in the selection of their alternative for this EDD.

Decision:

- Collect free oil and dispose off site according to TSCA.
- Excavate soils exceeding 1 ppm PCB, 1,000 ppm lead, and 5 ppm arsenic.
- Using a cement-type mixture, solidify/stabilize soils and place on site.
- Institute land use controls.

Contacts:

- Region: John Kroske
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- Headquarters: Gregg Eckert
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**NEW BRIGHTON/ST. ANTHONY
WELLS OPERABLE UNIT
REGION V
MINNESOTA**
(Approved 3/31/87)

Description:

- The New Brighton/Arden Hills/St. Anthony site area has ground water that is extensively contaminated with VOCs. Because of increasing municipal and private well contamination in the area, three initial remedial measures were implemented in 1983 and

1984 to provide safe drinking water. In 1985, an operable unit FS was completed that evaluated an alternative water supply for one of New Brighton's municipal wells. A comprehensive RI/FS that is being conducted by the state will address final remedial measures for the areawide ground water problem.

The St. Anthony operable unit addresses ground water contamination in the city of St. Anthony's municipal well field. St. Anthony's water supply system consists of three municipal wells and an interconnection to the City of Roseville's water distribution system. One well has been shut down since early 1984 because of rising VOC contamination levels. An existing water treatment facility provides manganese and iron removal, followed by chlorination, for two of the three wells. Chlorination treatment is provided for the third well, which is not connected to the treatment facility.

Decision:

- Treat ground water from contaminated wells by GAC to levels equivalent to MCLs or proposed MCLs. Discharge to public water treatment plant.
- Construct a pipeline to connect the third well to the GAC treatment facility.

Contacts:

- Region: Gene Wong
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- Headquarters: Carol Lindsay
FTS 475-9754

**QUEEN CITY FARMS
REGION X
WASHINGTON**
(Approved 10/24/85)

Description:

- This 320-acre site includes a wooded area, a lake, six industrial waste disposal lagoons, an airstrip, several residences, and a gravel pit. The ponds were used for miscellaneous waste disposal purposes from 1955 to 1964. Metals, PCBs, and organics were found in the lagoon water, sludge, and sediments. There is also soil and ground water contamination. A focused feasibility

study to implement an IRM for pond cleanup was completed in 1985.

Decision:

- Excavate and separate lagoon sludge into grit, cake, oils, and water.
- Stabilize the liquid portions with a pozzolanic agent.
- Dispose of all solid material produced during sludge separation and liquid stabilization off site in a RCRA landfill.
- Excavate contaminated soils adjacent to the lagoons and place in lagoons after sludge is removed.
- Excavate an upgradient trench to intercept surface and shallow ground water.
- Cap the lagoon area with a synthetic membrane.
- Monitor effectiveness of the actions.

Contacts:

- Region: Wayne Grotheer
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- Headquarters: Kevin Rochlin
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Correction

In last month's issue of the *ROD Update*, the wrong contact people were inadvertently listed for the ROD Summaries in Region VIII. Following is a list of the sites for which this occurred, along with the names of the correct contact people for each site.

Marshall Landfill

Region: Liz Evans
FTS 564-1518
Headquarters: Blake Velde
FTS 382-7789

North Dakota Arsenic Trioxide

Region: Walter Sandza
FTS 564-1518
Headquarters: Blake Velde
FTS 382-7789

Smuggler Mountain

Region: Laura Clemens
FTS 564-1518
Headquarters: Blake Velde
FTS 382-7789

Union Pacific

Region: Tom Burns
FTS 564-1518
Headquarters: Blake Velde
FTS 382-7789

ON-SITE INSIGHTS

SPINNER LOGGING/DEPTH SAMPLING INDIAN BEND WASH, ARIZONA PHOENIX-GOODYEAR, ARIZONA REGION IX

Background

Contaminated ground water was discovered at two large sites in Arizona in the early 1980s. The Indian Bend Wash site encompasses approximately 12 square miles in parts of Tempe, Scottsdale, and Phoenix. Ground water that provides potable water for more than 350,000 people was found to be contaminated with TCE and other chlorinated solvents. Six municipal wells were shut down as a result of the contamination. The Phoenix-Goodyear site (formerly known as the Litchfield site) covers about 42 square miles in the vicinity of the Phoenix-Goodyear Municipal Airport and the cities of Goodyear and Avondale. Ground water in the area supplies drinking water for more than 30,000 people and is contaminated with chlorinated solvents, especially TCE.

Multi-layered alluvial strata with at least three major water-producing zones were involved at both sites. Typical production wells at the sites ranged from 700 to 1,500 feet in depth. To determine the magnitude and sources of the contamination, remedial investigations are being conducted at both sites.

Aquifers can be investigated by placing geophysical instruments in a borehole to gather data. Once the geophysical data from the borehole have been recorded on chart paper, they are referred to as a specific kind of log, depending on the method used to gather the data. These logs can be used to supplement data from a surface survey, or they can be used by themselves to guide engineers in determining the thickness of the formations, the zones of highest porosity, and the quality of the water. They also assist in well design and help to determine the efficiency of the well construction techniques.

Because of the thickness of the aquifers and the size and complexity of the sites in Arizona, it was particularly important to use an economical, efficient, and accurate

method of determining the areal and vertical extent of the contamination and the depth distribution of aquifer yield and rate of ground water flow in the aquifers. Consequently, the production wells were logged with down-hole flowmeters (spinners) and sampled at different depths to help determine optimal locations for clusters of monitoring wells.

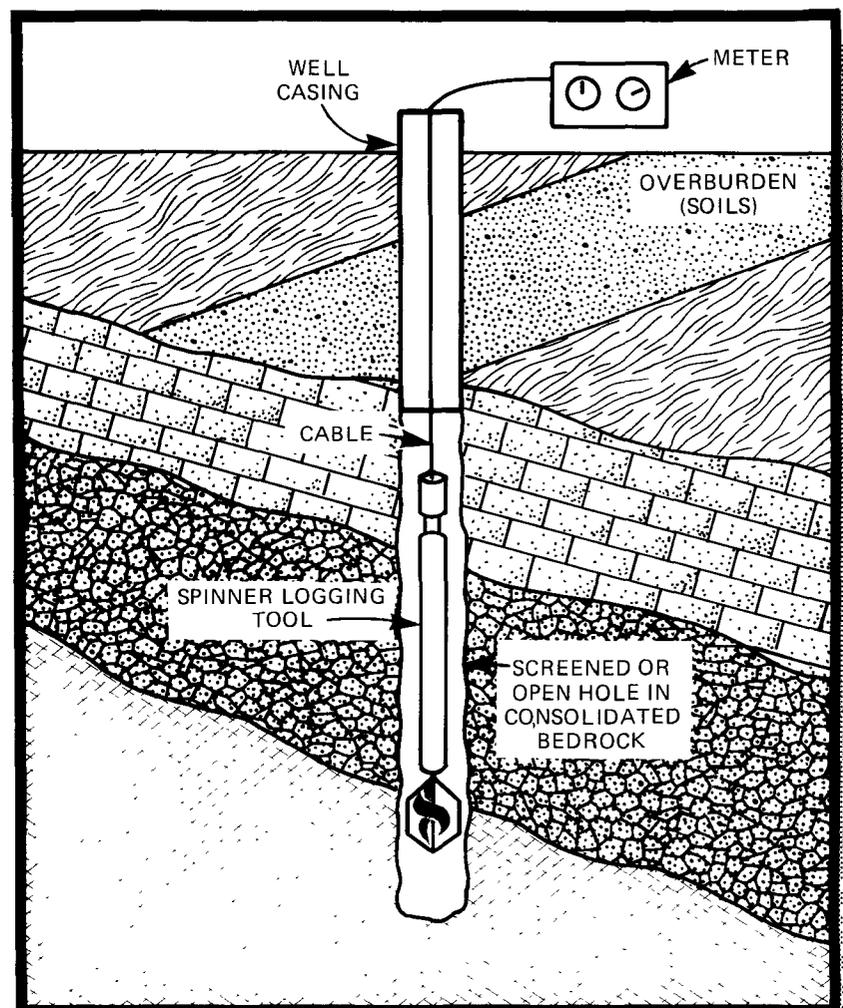
Operation

During the summer of 1986, the spinners, depth sampling tools, and geophysical logging equipment were installed in four existing large-diameter production wells at the sites. The objectives of the effort were to define the depth distribution of the contaminants, the zones that yield water to the wells, the role that each well plays in the movement of contaminants between aquifers, and the zones that could

or should be sealed off to prevent the further movement of contaminants. Both static and dynamic logging were conducted. In order to stabilize the flow of water, the wells were pumped at a rate of 1,000 to 1,200 gallons per minute for 4 to 5 hours before the dynamic samples were taken.

Results

Spinner logging and depth sampling of the production wells made it possible to determine where contamination was entering the wells and to obtain data on the flow rate of water from the units that would not have been gained solely through the use of monitoring well clusters. Also, the effort proved that the production wells acted as conduits for the downward movement of contaminants.



SPINNER LOGGING EQUIPMENT
IN USE IN A WELL

In addition, the logging revealed holes in the wells that were not detected during video logging. The video logging was conducted using a 3-inch television camera with a 180-degree sweep. This camera was lowered into the production wells to allow the project team to evaluate the condition of the wells. Encrustations on the sides of the wells covered up some of the holes that were present, so these holes were not seen by the camera.

Spinner logging and depth sampling of a single production well typically took 1 week to complete, whereas the construction of a cluster of monitoring wells at the same location would have required a minimum of 4 weeks. In addition, the cost of spinner logging and depth sampling was approximately one-third of the cost of constructing the monitoring wells that would have been necessary to produce similar

results. Using the results of the spinner logging and depth sampling, it was possible to determine effective locations for monitoring wells, which created a further savings in cost and time.

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A LINE ON RODS

ROD Report Available to Public

The FY'86 *ROD Annual Report*, published in January 1987, is now available to the public from NTIS at the following address:

National Technical Information
Service
Customer Services
5285 Port Royal Road
Springfield, VA 22161
703-487-4600

The document can be obtained by requesting PB No. 871995-50 and citing the name of the report. Each copy costs \$18.95 plus a \$3.00 postage and handling charge.