

Bibliography of Federal Reports and Publications Describing Alternative and Innovative Treatment Technologies For Corrective Action and Site Remediation

Prepared by the Member Agencies of the
Federal Remediation Technologies Roundtable:

U.S. Environmental Protection Agency
Department of Defense
 U.S. Army
 U.S. Army Corps of Engineers
 U.S. Navy
 U.S. Air Force
Department of Energy
Department of Interior
 Bureau of Reclamation

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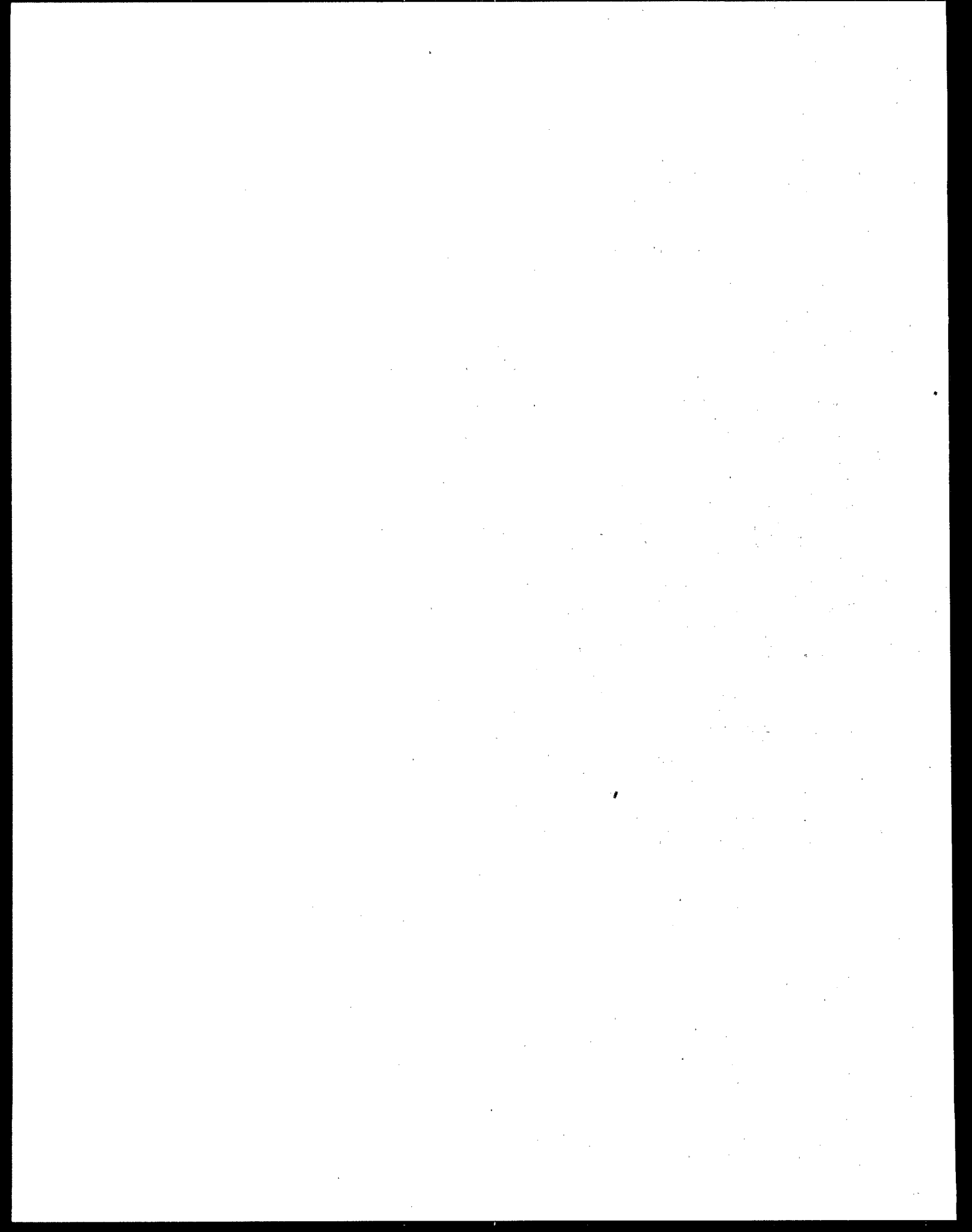
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NOTICE

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PREFACE

The Federal Remediation Technologies Roundtable (Roundtable) developed this bibliography to publicize the accessibility of Federal documents pertaining to innovative and alternative technologies to treat hazardous wastes. The bibliography contains references for documents and reports from the U.S. Environmental Protection Agency (EPA), the U.S. Army, the U.S. Army Corps of Engineers, the U.S. Navy, the U.S. Air Force, the U.S. Department of Energy (DOE), and the U.S. Department of Interior (DOI), Bureau of Reclamation. The Roundtable obtained this reference information from a variety of sources:

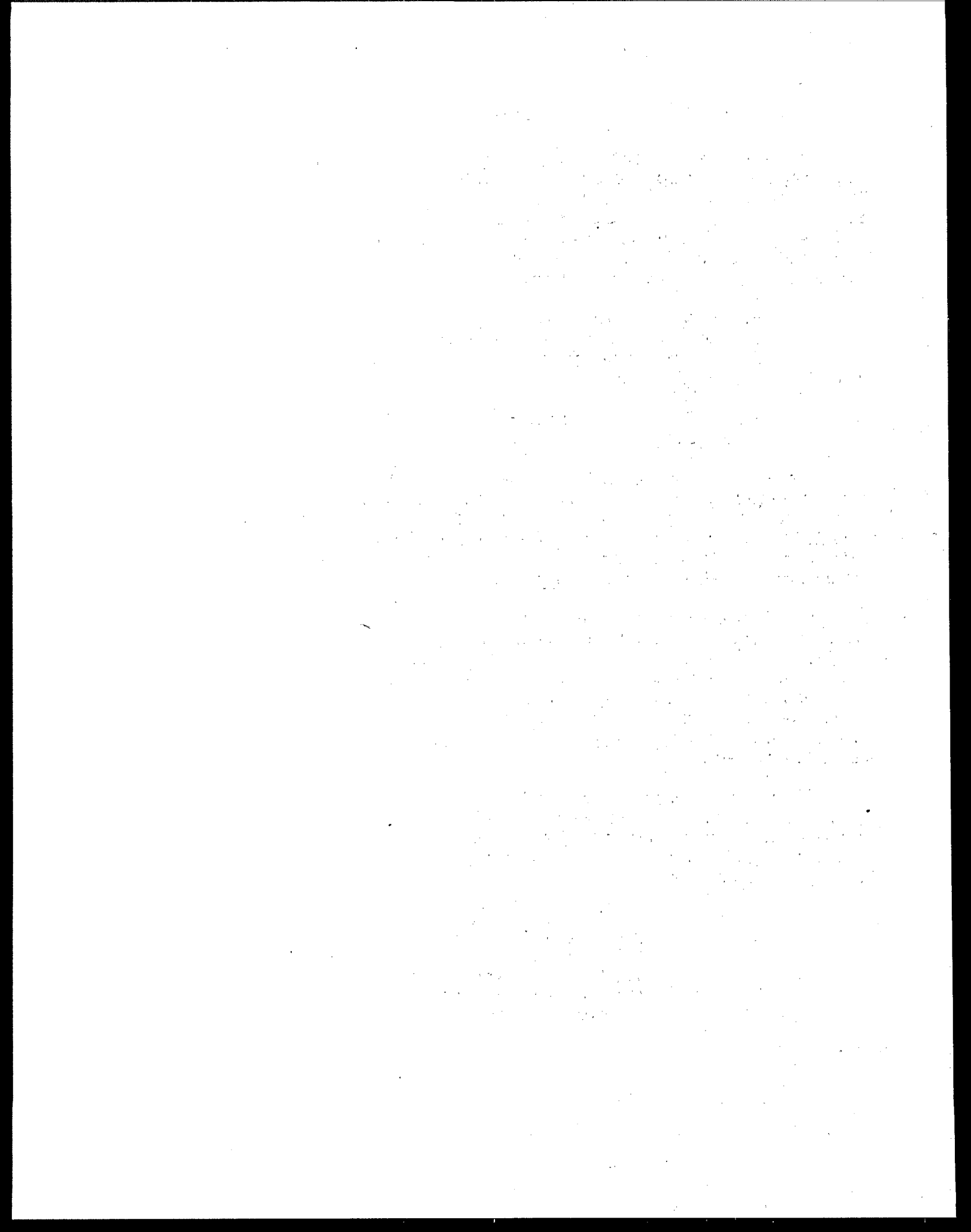
- Federal Agency report, project and publication lists from EPA, the Naval Civil Engineering Laboratory, the U.S. Army Toxic and Hazardous Materials Agency, the Air Force Engineering and Sciences Center, and the U.S. Department of Defense (DoD); and
- National Technical Information Service (NTIS), DOE, Enviroline, and other data base searches.

This bibliography addresses technologies which provide for the treatment of hazardous wastes; therefore, it does not contain information or references for containment or other non-treatment strategies, such as landfilling and capping. Although there are some references for more conventional treatment technologies, such as incineration and solidification, the main focus of this bibliography is on innovative technologies for which detailed cost and performance data are not available.

In addition to improving access to information on innovative technologies, the Roundtable hopes this bibliography will assist in the coordination of ongoing research initiatives, and increase the development and implementation of these innovative technologies for corrective action and site remediation. This bibliography is intended to serve as a starting point in your pursuit of information on innovative alternative hazardous waste treatment technologies and should not be considered the sole source for this type of information. At the end of this document (see page 21), you will find instructions for ordering publications you may be interested in.

This bibliography is scheduled to undergo periodic revisions. Therefore, if your Agency has produced any publications on innovative remediation technologies that should be included in future versions of this bibliography, or if you have any suggestions for improving this document, please complete the suggestion form on page 23, or contact the EPA Technology Innovation Office:

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A. INTERNATIONAL SURVEYS AND CONFERENCES

EPA

- o *Assessment of International Technologies for Superfund Applications: Technology Review and Trip Report Results.*
EPA/540/2-88/003
- o *Assessment of International Technologies for Superfund Applications: Technology Identification and Selection.*
EPA/600/2-89/017
- o *Forum on Innovative Hazardous Waste Treatment Technologies, Domestic and International, Atlanta, GA.*
EPA/540/2-89/056 (Technical Papers)
- o *Second Forum on Innovative Hazardous Waste Treatment Technologies, Domestic and International.*
EPA/540/2-90/009 (Abstracts)
EPA/540/2-90/010 (Technical Papers)
- o *NATO/CCMS Project -- International Evaluation of In Situ Bioremediation of Contaminated Soil and Groundwater.*
EPA/540/2-90/012
- o *Second International Conference on New Frontiers for Hazardous Waste Management: Proceedings of a Conference Held in Pittsburgh, PA, Sept. 27-30, 1987.*
EPA/600/9-87/018F
- o *Third International Conference on New Frontiers for Hazardous Waste Management: Proceedings of a Conference Held in Pittsburgh, PA, Sept. 10-13, 1989.*
EPA/600/9-89/072

DOE

- o *Bioremediation of Mercury-Contaminated Sites: Foreign Trip Report, Sept. 9-17, 1989.*
Turner, R.R. Oak Ridge National Laboratory, DOE, TN. Sept. 1989.
ORNL/FTR-3393; NTIS or OSTI: DE90001248

B. TECHNOLOGY SURVEY REPORTS

EPA

- o *Approaches for Remediation of Uncontrolled Wood Preserving Sites.*
EPA/625/7-90/011
- o *Assessing Detoxification and Degradation of Wood Preserving and Petroleum Wastes in Contaminated Soil.* April, W., R. Sims, and J. Sims. Waste Management & Research. 8(1): 45-65. Feb. 90.
EPA/600/J-90/009; NTIS: PB 90-243275

- o *A Compendium of Technologies Used in the Treatment of Hazardous Waste.* EPA/625/8-87/014
- o *Guidance on Remedial Action for Superfund Sites with PCB Contamination.* EPA/540/G-90/007
- o *Guide to Treatment Technologies for Hazardous Wastes at Superfund Sites.* Office of Environmental Engineering and Technology, U.S. EPA, Washington, D.C. Mar. 1989. EPA/540/2-89/052; NTIS: PB 89-190821/XAB
- o *Handbook on In Situ Treatment of Hazardous Waste-Contaminated Soils.* EPA/540/2-90/002
- o *In Situ Restoration Techniques for Aquifers Contaminated with Hazardous Wastes.* Lee, M.D., J.T. Wilson, and C.H. Ward. Journal of Hazardous Materials. Elsevier Science Publishers B.V. Amsterdam, The Netherlands. 14: 71-82. 1987. EPA/600/J-87/032; NTIS: PB 87-198396
- o *Innovative Operational Treatment Technologies for Applications to Superfund Sites.* EPA/540/2-90/006
EPA/540/2-90/004 (Nine Case Studies)
- o *Innovative Processes for Reclamation of Contaminated Subsurface Environments.* Canter, L.W., L.E. Streebin, M.C. Arquiga, F.E. Carranza, and B.H. Wilson. EPA/600/2-90/017 (Project Summary); NTIS: PB 90-199514
- o *Innovative Treatment Technologies: Semi-Annual Status Report.* Jan. 1991. EPA/540/2-91/001
- o *Mobile Treatment Technologies for Superfund Wastes.* EPA/540/2-86/003f
- o *Report on Decontamination of PCB-Bearing Sediments.* Wilson, D.L. Hazardous Waste Engineering Research Laboratory, U.S. EPA, Cincinnati, OH. Oct. 1987. EPA/600/2-87/093
- o *Review of In-Place Treatment Techniques for Contaminated Surface Soils. Volume I. Technical Evaluation.* EPA/540/2-84/003a
- o *PCB (Polychlorinated Biphenyl) Sediment Decontamination, Technical/Economic Assessment of Selected Alternative Treatments: Final Report, Jun. 1985-Feb. 1986.* Carpenter, B.H. Hazardous Waste Engineering Research Laboratory, U.S. EPA, Cincinnati, OH. Dec. 1986. EPA/600/2-86/112
- o *Seminar Publication -- Corrective Actions: Technologies and Applications.* EPA/625/4-89/020
- o *Summary of Treatment Technology Effectiveness for Contaminated Soil: Final Report.* EPA/540/2-89/053

- o *Superfund Innovative Technology Evaluation (SITE) Program -- Brochure.*
EPA/540/8-89/010
- o *Superfund Innovative Technology Evaluation Program -- SITE Program Fact Sheet.*
OSWER Directive 9330.1-03FS
- o *Superfund Innovative Technology Evaluation Program: Technology Profiles.*
EPA/540/5-90/006
- o *Superfund Treatability Clearinghouse Abstracts.*
EPA/540/2-89/001
- o *Technical Resource Document: Treatment Technologies for Halogenated Organic Containing Wastes. Volume I.*
EPA/600/2-87/098
- o *Technologies of Delivery or Recovery for the Remediation of Hazardous Waste Sites.*
EPA/600/S2-89/066 (Project Summary)
- o *Technologies for In Situ Treatment of Hazardous Wastes.* Sanning, D.E. and R.F. Lewis. Hazardous Waste Engineering Research Laboratory, U.S. EPA, Cincinnati, OH. Jan. 1987.
EPA/600/D-87/014; NTIS: PB 87-146007/XAB
- o *Technology Screening Guide for Treatment of Soils and Sludges.*
EPA/540/2-88/004
- o *Treatment Potential for 56 EPA Listed Hazardous Chemicals in Soil.* Sims, R.C., W.J. Doucette, J.E. McLean, W.J. Greeney, and R.R. Dupont. Feb. 1988.
EPA/600/6-88/001; NTIS: PB 89-174446
- o *Treatment Technology Background Document.* Berlow, J.R. and J. Vorbach. Office of Solid Waste, U.S. EPA, Washington, DC. Jun. 1989.
EPA/530/SW-89/048A; NTIS: PB 89-221410/XAB

U.S. Army

- o *Guidelines for Selecting Control and Treatment Options for Contaminated Dredged Material Requiring Restrictions: Final Report.* Cullinane, M.J., et al. U.S. Army Corps of Engineers Waterways Experiment Station. Sept. 1986.
No published documentation number
- o *Installation Restoration and Hazardous Waste Control Technologies.* 1990 Edition. U.S. Army Toxic and Hazardous Materials Agency. Aug. 1990.
USATHAMA: CETHA-TS-CR-90067

DOE

- o *Demonstrations of Technology for Remediation and Closure of Oak Ridge National Laboratory Waste Disposal Sites.* Spalding, B.P., G.K. Jacobs, and E.C. Davis. Oak Ridge National Laboratory, DOE, TN. Sept. 1989.
ORNL/TM-11286; NTIS or OSTI: DE90001854

- o *Treatability of Hazardous Chemicals in Soils: Volatile and Semivolatile Organics.* Walton, B.T., M.S. Hendricks, T.A. Anderson, and S.S. Talmage. Oak Ridge National Laboratory, DOE, TN. Jul. 1989.
ORNL-6451; NTIS or OSTI: DE89016892 (Also available from EPA, Ada, OK)

C. TREATABILITY STUDIES (General)

EPA

- o *Groundwater and Leachate Treatability Studies at Four Superfund Sites.*
EPA/600/2-86/029
- o *Results of Treatment Evaluations of Contaminated Soils.* Esposito, P., J. Hessling, B.B. Locke, M. Taylor, and M. Szabo. Hazardous Waste Engineering Research Laboratory, U.S. EPA, Cincinnati, OH. Aug. 1988.
EPA/600/D-88/181
- o *Treatability Potential For EPA Listed Hazardous Wastes in Soil.* Loehr, R.C.
EPA/600/2-89/011; NTIS: PB 89-166581 (Available from EPA, Ada, OK)
- o *Treatability Potential for 56 EPA Listed Hazardous Chemicals in Soil.*
NTIS: PB 89-174446 (Available from EPA, Ada, OK)
- o *Treatment of Hazardous Landfill Leachates and Contaminated Groundwater.*
EPA/600/2-88/064

D. THERMAL PROCESSES

EPA

- o *Applications Analysis Report (SITE Program) -- American Combustion Pyretron Destruction System.*
EPA/540/A5-89/008
- o *Applications Analysis Report (SITE Program) -- Shirco Infrared Incineration System.*
EPA/540/A5-89/007 (Also available in videocassette from EPA, Edison, NJ)
- o *Engineering Bulletin -- Mobile/Transportable Incineration Treatment.*
EPA/540/2-90/014

U.S. Army

- o *Bench-Scale Investigation of Low Temperature Thermal Stripping of Volatile Organic Compounds (VOCs) from Various Soil Types: Technical Report.* Johnson, N.P., J.W. Noland, and P.J. Marks. U.S. Army Toxic and Hazardous Materials Agency. Nov. 1987.
USATHAMA: AMXTH-TE-CR-87124

- o *Demonstration of Thermal Stripping of JP-4 and other VOCs from Soils at Tinker Air Force Base, Oklahoma City, OK: Final Report.* U.S. Army Toxic and Hazardous Materials Agency. Mar. 1990.
USATHAMA: CETHA-TS-CR-90026
- o *Economic Evaluation of Low Temperature Thermal Stripping of Volatile Organic Compounds from Soil: Technical Report.* Marks, P.J. and J.W. Noland. U.S. Army Toxic and Hazardous Materials Agency. Aug. 1986.
USATHAMA: AMXTH-TE-CR-86085
- o *Pilot Investigation of Low Temperature Thermal Stripping of Volatile Organic Compounds from Soil (2 vols.).* U.S. Army Toxic and Hazardous Materials Agency. Task 11. Jun. 1986.
USATHAMA: AMXTH-TE-TR-86074

E. SOLIDIFICATION/STABILIZATION

EPA

- o *Applications Analysis Report -- Chemfix Technologies, Inc., Chemical Fixation/Stabilization.*
EPA/540/A5-89/011
- o *Bench Scale Fixation of Soils from the Tacoma Tar Pits Superfund Site.*
EPA/600/8-89/069
- o *Critical Review of Cement-Based Stabilization/Solidification Techniques for the Disposal of Hazardous Wastes: Final Report Mar.-Dec. 1986.* Clark, A., Clark and Associates, Twickenham (England). Dec. 1986.
R/D-5433-EN-01; NTIS: AD-A184 427/3/XAB
- o *Evaluation of Solidification/Stabilization as Best Demonstrated Available Technology for Contaminated Soils.*
EPA/600/S2-89/013 (Project Summary)
- o *Evaluation of Solidification/Stabilization for Treating Hazardous Waste in the United States.*
EPA/600/D-88/030
- o *Feasibility of In Situ Solidification/Stabilization of Landfilled Hazardous Wastes.*
EPA/600/2-83/088
- o *Handbook for Stabilization/Solidification of Hazardous Waste.*
EPA/540/2-86/001
- o *Interference Mechanisms in Waste Stabilization/Solidification Processes.* Jones, L.W. Risk Reduction Engineering Laboratory, U.S. EPA, Cincinnati, OH. Jan. 1990.
EPA/600/2-89/067
- o *In Situ Stabilization/Solidification of PCB-Contaminated Soil.*
EPA/600/D-89/119

- o *The Morphology and Microchemistry of Solidified/Stabilized Hazardous Waste Systems.*
NTIS: PB 90-134156/AS
- o *Perspectives on Solidification/Stabilization Technology for Treating Hazardous Waste.*
EPA/600/D-87/027
- o *Physical Properties and Leach Testing of Solidified/Stabilized Industrial Wastes.*
EPA/600/2-82/099
- o *Review of Solidification/Stabilization Technology.*
EPA/600/J-87/019
- o *SITE Demonstration of the CHEMFIx Solidification/Stabilization Process at the Portable Equipment Salvage Company Site.*
EPA/600/J-90/021
- o *Solidification and Thermal Degradation of TNT Waste Sludges Using Asphalt Encapsulation: Report for June 1982-June 1983.* Triegel, E.K., J.R. Kolmer, and D.W. Ouanian. Woodward-Clyde Consultants, Plymouth Meeting, PA. Aug. 1986.
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- o *Stabilization/Solidification of CERCLA and RCRA Wastes: Physical Tests, Chemical Testing Procedures, Technology Screening, and Field Activities.* Center for Environmental Research Information (CERI), U.S. EPA, Cincinnati, OH. May 1989.
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- o *Stabilization/Solidification of Hazardous Waste.* Hill, R.D. Hazardous Waste Engineering Research Laboratory, U.S. EPA, Cincinnati, OH. Jan. 1986.
EPA/600/D-86/028; NTIS: PB 86-156312/XAB
- o *Status of Solidification/Stabilization in the United States and Factors Affecting Its Use.*
EPA/600/D-89/159
- o *Survey of Solidification/Stabilization Technology for Hazardous Industrial Wastes.*
EPA/600/2-79/056
- o *Systems to Accelerate In Situ Stabilization of Waste Deposits.*
EPA/540/2-86/002
- o *Technical and Regulatory Status of Solidification/Stabilization in the United States.*
EPA/600/D-90/057
- o *Technology Demonstration Summary -- International Waste Technologies/Geo-Con In Situ Stabilization/Solidification Update Report.* Jan. 1991.
EPA/540/S5-89/004a
- o *Technology Evaluation Report, SITE Program Demonstration, International Waste Technologies, In Situ Stabilization/Solidification Technology, Hialeah, FL. Volume I.*
EPA/540/5-89/004a

- o *Technology Evaluation Report, SITE Program Demonstration, International Waste Technologies, In Situ Stabilization/Solidification Technology, Hialeah, FL. Volume II.*
EPA/540/5-89/004b
- o *Technology Evaluation Report, SITE Program Demonstration Test, HAZCON Solidification, Douglasville, PA. Volume I.*
EPA/540/5-89/001a (Also available in videocassette from EPA, Edison, NJ)
- o *Technology Evaluation Report, SITE Program Demonstration Test, HAZCON Solidification, Douglasville, PA. Volume II.*
EPA/540/5-89/001b
- o *Technology Evaluation Report, SITE Program Demonstration Test, Soliditech, Inc. Solidification/Stabilization Process, Morganville, NJ. Volume I.*
EPA/540/5-89/005a
- o *Technology Evaluation Report, SITE Program Demonstration Test, Soliditech, Inc. Solidification/Stabilization Process, Morganville, NJ. Volume II.*
EPA/540/5-89/005b
- o *Toxicity Bioassay and Eluate Heavy Metals Analysis Results of the Bench Scale Stabilization Study of Soils from the United Chrome Superfund NPL Site, Corvallis, OR.*
EPA/600/3-89/074

U.S. Army

- o *Innovative Solidification Techniques for Hazardous Wastes at Army Installations: Final Report.* Myers, T.E. Environmental Laboratory, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. Nov. 1985.
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U.S. Navy

- o *Review of Literature on Waste Solidification/Stabilization with Emphasis on Metal-Bearing Wastes: Final Report, Sept. 1988-May 1989.* Clark, S., T. Greathouse, and J. Means. Naval Civil Engineering Laboratory, Port Hueneme, CA. Aug. 1989.
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U.S. Air Force

- o *In Situ Immobilization of Heavy-Metal-Contaminated Soil: Final Report, Sept. 11, 1984-Feb. 4, 1987.* Czupyrna, G., R.D. Levy, A.I. MacLean, and H. Gold. Air Force Engineering and Services Center, Tyndall Air Force Base, FL. Jun. 1988.
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DOE

- o *Cement Fixation Studies at Oak Ridge Gaseous Diffusion Plant.* Shoemaker, J.L. Oak Ridge Gaseous Diffusion Plant, DOE, TN. Nov. 1986.
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- o *Improved Method and Composition for Immobilization of Waste in Cement-Based Material.* Tallent, O.K., K.E. Dodson, and E.W. McDaniel. Oak Ridge National Laboratory, DOE, TN. Oct. 1987.
NTIS: Patents-US-A6103149
- o *Protection of Ground Water by Immobilization of Heavy Metals in Industrial-Waste Impacted Soil Systems.* McLean, J.E., L.M. Dudley, R.C. Sims. Utah Water Research Laboratory, Utah State University, Logan, UT. Sept. 1986.
NTIS: PB 87-112413/XAB
- o *Spray-Dryer Spent-Sorbent Hazardous-Waste Fixating and Cemetitious Properties.* Schultz, T.D., R.L. Berger, and K. Fishbein. Illinois University, Urbana, IL. Mar. 1989.
NTIS: PB 90-160748/XAB

F. BIOLOGICAL

EPA

- o *Action of a Fluoranthene-Utilizing Bacterial Community of Polycyclic Aromatic Hydrocarbon Components of Creosote.*
EPA/600/J-89/425
- o *Adaptation to and Biodegradation of Xenobiotic Compounds by Microbial Communities from a Pristine Aquifer.* Aelion, C.M., C.M. Swindoll, and F.K. Pfaender. Appl. Environ. Microbiol. 53(9): 2212-2217. Sept. 1987.
EPA/600/J-87/208; NTIS: PB 88-170584
- o *Aerobic Biodegradation of Natural and Xenobiotic Organic Compounds by Subsurface Microbial Communities.* Swindoll, C.M., C.M. Aelion, D.C. Dobbins, et al. Environmental Toxicology and Chemistry. 7(4): 291-299. Apr. 1988.
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- o *Alaskan Oil Spill Bioremediation Project.*
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- o *Anaerobic Biotransformations of Pollutant Chemicals in Aquifers.* Sulflita, J.M., S.A. Gibson, and R.E. Beeman. Journal of Industrial Microbiology. 3(3): 179-194. May 1988.
EPA/600/J-88/142; NTIS: PB 89-119341
- o *Anaerobic Degradation of Nitrogen Substituted and Sulfonated Benzene Aquifer Contaminants.* Sulflita, J.M. Hazardous Wastes and Hazardous Materials. 6(2): 121-133. Spring 1989.
EPA/600/J-89/190; NTIS: PB 90-140708
- o *The Anaerobic Degradation of o-, m- and p-Cresol by Sulfate-Reducing Bacterial Enrichment Cultures Obtained from a Shallow Anoxic Aquifer.* Sulflita, J.M., L. Liang, and A. Saxena. Journal of Industrial Microbiology. 4(4): 255-266. Jul. 1989.
EPA/600/J-89/187; NTIS: PB 90-140674
- o *Approach to Bioremediation of Contaminated Soil.*
EPA/600/J-90/203

- o *Assessing Detoxification and Degradation of Wood Preserving and Petroleum Wastes in Contaminated Soil.*
EPA/600/J-90/099
- o *Athias -- An Information System for Abiotic Transformations of Halogenated Hydrocarbons in Aqueous Solution.* Ellenrider, W. and M. Reinhard. Chemosphere. 17(2): 331-344. Feb. 1988.
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- o *Biological Treatment of Leachate from a Superfund Site.*
EPA/600/J-89/001
- o *The Biodegradation of Cresol Isomers in Anoxic Aquifers.* Smolenski, W.J. and J.M. Suflita. Appl. Environ. Microbiol. 53(4): 710-716. Apr. 1987.
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- o *Bioremediation of Contaminated Surface Soils.* Sims, J.L., R.C. Sims, and J.E. Matthews. Robert S. Kerr Environmental Research Laboratory, U.S. EPA, Ada, OK. Aug. 1989.
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- o *Bioremediation of Hazardous Waste.*
EPA/600/9-90/041
- o *Biorestitution of Aquifers Contaminated with Organic Compounds.* Lee, M.D., J.M. Thomas, R.C. Borden, P.B. Bedient, C.H. Ward, and J.T. Wilson. CRC Critical Reviews in Environmental Control. 18(1): 29-89. 1988.
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- o *Biotransformation of Priority Pollutants Using Biofilms and Vascular Plants.* Wolvedon, B.C. and R.C.J. McCales. Mississippi Academy of Sciences. Vol. XXXI. pp. 79-89. 1986.
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- o *Biotransformation of Selected Alkylbenzenes and Halogenated Aliphatic Hydrocarbons in Methanogenic Aquifer Material: A Microcosm Study.* Smith, B.H., G.B. Smith, and J.S. Rees. Environ. Sci. Technol. 20(10): 997-1002. 1986.
EPA/600/J-86/227; NTIS: PB 87-170791
- o *Determination and Enhancement of Anaerobic Dehalogenation: Degradation of Chlorinated Organics in Aqueous Systems.*
EPA/600/2-88/054
- o *Determination of Optimal Toxicant Loading for Biological Closure of a Hazardous Waste Site.*
EPA/600/D-89/163
- o *Engineering Bulletin -- Slurry Biodegradation.*
EPA/540/2-90/016
- o *Enhanced Bioremediation Utilizing Hydrogen Peroxide as a Supplemental Source of Oxygen.* Huling, S. and B. Bledsoe.
EPA/600/2-90/006; NTIS: PB 90-183435

- o *Extrapolation of Biodegradation Results to Groundwater Aquifers: Reductive Dehalogenation of Aromatic Compounds.* Gibson, S.A. and J.M. Suflita. Appl. Environ. Microbiol. 52(4): 681-688. Oct. 1986.
EPA/600/J-86/379; NTIS: PB 87-212429/AS
- o *A Field Evaluation of Bioremediation of a Fuel Spill Using Hydrogen Peroxide.*
NTIS: PB 88-130257 (Available from EPA, Ada, OK)
- o *A Field Evaluation of In Situ Biodegradation for Aquifer Restoration.* Semprini, L., P. Roberts, G. Hopkins, D. Mackay. Stanford University, Stanford, CA. Nov. 1987.
EPA/600/2-87/096; NTIS: PB 88-130257
- o *In Situ Aquifer Restoration of Chlorinated Aliphatics by Methanotrophic Bacteria.* Roberts, P., L. Semprini, G. Hopkins, et al. Jul. 1989.
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- o *In Situ Bioremediation of Spills from Underground Storage Tanks: New Approaches for Site Characterization, Project Design, and Evaluation of Performance.* Wilson, J.T. and L.E. Leach. EPA/600/2-89/042; NTIS: PB 89-219976 (Available from EPA, Ada, OK)
- o *In Situ Bioremediation as a Ground Water Remediation Technique.* Wilson, J.T., L.E. Leach, M.J. Henson, and J.N. Jones. Ground Water Monitoring Review. pp. 56-64. Fall 1986.
EPA/600/J-86/305; NTIS: PB 87-177101
- o *Innovative Technology: Slurry-Phase Biodegradation.*
OSWER Directive 9200.5-252-FS (Fact Sheet)
- o *Laboratory Studies Evaluating the Enhanced Biodegradation of Weathered Crude Oil Components Through the Application of Nutrients.*
EPA/600/D-90/139
- o *Leaking Underground Storage Tanks: Remediation with Emphasis on In-Situ Bioremediation.* Thomas, J.M., M.D. Lee, P.B. Bedient, et al. Jan. 1987.
EPA/600/2-87/008; NTIS: PB 87-168084
- o *Lubbock Land Treatment System Research and Demonstration Project. Volume 2. Percolate Investigation in the Root Zone.*
EPA/600/2-86/027b
- o *Lubbock Land Treatment System Research and Demonstration Project. Volume 5. Executive Summary.*
EPA/600/2-86/027e
- o *Microbial Decomposition of Chlorinated Aromatic Compounds.*
EPA/600/2-86/090
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