
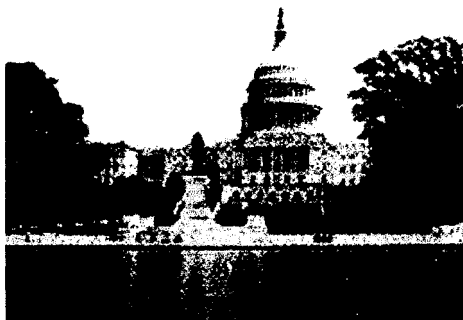
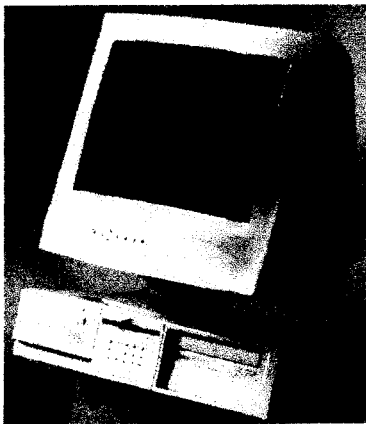


United States
Environmental Protection
Agency

Solid Waste and
Emergency
Response

EPA 540/R-98/004
OSWER 9272.0-14
PB98-963301
February 1998

 **EPA Compendium of Federal
Facilities Cleanup
Management Information**



**Compendium of Federal Facilities Cleanup Management Information
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- c. Technical Support Document - Parameters and Equations Used in Integrated Exposure Uptake Biokinetic Model for Lead in Children (Version 0.99D) (1994)
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INTRODUCTION

This *Compendium of Federal Facilities Cleanup Management Information* (formerly titled *Compendium of Hazardous Waste Remediation Management Information*) outlines key hazardous substance and waste remedy publications, guidance, databases, CD-ROMs, and Internet home pages for Federal facilities' remedial managers to use as key references to guide their supervision of the remediation of hazardous waste sites. The resources in this *Compendium* were recommended by OSWER and FFRRO staff, both at Headquarters and in the regions. These key resources will assist the remedial manager to plan, implement, and oversee both immediate and long-term remedial actions, with a focus on the selection of remedies. This *Compendium* includes resources produced by EPA's Federal Facilities Restoration and Reuse Office (FFRRO), Technology Innovation Office, Office of Emergency and Remedial Response, Office of Underground Storage Tanks, Office of Solid Waste and Emergency Response, and Office of Research and Development, as well as the Department of Energy, the Department of Defense, and the Federal Remediation Technologies Roundtable. The "Other Related Compendiums and Resources" section references compendiums and catalogs in which you can find information on related topics.

You can find the Compendium on-line at www.epa.gov/swerffrr/guide.htm (FFRRO Home Page, Initiatives and Guidance Section). The *Compendium* is in HTML, WordPerfect, and PDF formats for viewing and downloading. For more information about Federal facilities, please see the FFRRO Home Page (www.epa.gov/swerffrr/).

This is the first annual update of the *Compendium*. For comments or questions regarding this *Compendium*, please contact:

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HOW TO USE THIS COMPENDIUM

Finding a Document in the *Compendium*

The Table of Contents lists all resources referenced in this *Compendium*, as well as their publication dates and the page on which each topic section begins.

The resources are organized by the following subject topics: remedial investigation/feasibility study (RI/FS), which includes risk assessment, ground water, soil, and presumptive remedies; removal/interim cleanup measures; remedy selection; record of decision; remedial design/action process; air emissions; underground storage tanks; innovative technologies; post-remedial actions; Federal facilities/interagency guidance, which includes general, Department of Defense, and Department of Energy; quality assurance; databases/users' manuals, which includes general and Geographic Information Systems (GIS); Internet home pages, which also includes general and Geographic Information Systems (GIS); and other related compendiums and resources.

The resources are organized within each topic section by publication date, from oldest to most current resource (i.e., a 1995 resource is listed before a 1997 resource). Each resource has been assigned a number (called "resource number"). Some resources are grouped together within one resource number because they are closely related; for example, when one resource is a supplement or draft update to the other.

A comprehensive index is presented at the end of the *Compendium*, which has been organized around key topic areas with extensive cross-referencing of the resource numbers.

Understanding the Resource Entries

Each resource entry includes a bibliography, web site address (if available at *Compendium* publication time), and an abstract. Each part of the bibliography described below is provided, as available. The short abstract highlights key aspects of the resource's subject matter and any unique characteristics about its format or content. The bibliographic format is as follows:

Title of Resource. Publication Date. Number of Pages. Publication Office. Publication Numbers. Publication City. Type of Document. [Where Document Can Be Located] <u>web site address</u> <i>Abstract...</i>

Obtaining Copies of the *Compendium* and Its Resources

HTML, PDF, and Word Perfect versions of the *Compendium* are available on the FFRRO Home Page (Initiatives and Guidance section) at www.epa.gov/swerffrr/guide.htm. The web address links you to *full text* of the resource, *not* bibliographies, short summaries, or other shortened information. Remember, sometimes Internet versions of documents are not comprehensive (e.g., they may not contain all of the original graphics or may be designed in a different format); you may want to obtain a hard copy as well.

At the end of this *Compendium*, in the section titled, “How to Obtain Documents Listed in This Guide,” is a description of how hard copies of each resource can be obtained. To obtain a hard copy of the *Compendium*, please contact Marianne Lynch (as noted in the “Introduction”).

Reminder: Bibliographic references and Internet web site addresses are current as of February 1998. Look for annual updates to the *Compendium* for the most up-to-date resources.

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Compendium of Federal Facilities Cleanup Management Information

I. Remedial Investigation/Feasibility Study (RI/FS)

A. General

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Interim Final). 1988. 198 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB89-184626, OSWER 9355.3-01, EPA/540/G-89/004. Washington, DC. [Available from NTIS, Superfund Docket] cioma40.cin.epa.gov:6003/ (This is the National Environmental Publications Information web site, where you can enter the title of the document, click on the "Search for" button, and locate the document for viewing and printing.)
This document outlines a Superfund RI/FS approach that is a dynamic and flexible process that can and should be tailored to specific circumstances of individual sites. The objective of the RI/FS process is not the unobtainable goal of removing all uncertainty, but rather to gather information sufficient to support an informed risk management decision regarding which remedy appears to be most appropriate for a given site. The appropriate level of analysis to meet the objective can only be reached through constant strategic thinking and careful planning concerning the essential data needed to research a remedy selection decision.
2. Approaches for the Remediation of Federal Facility Sites Contaminated with Explosive or Radioactive Wastes (Handbook). 1993. 128 pp. (EPA) U.S. Environmental Protection Agency, Office of Research and Development. EPA 625/R-93/013. Washington, DC. [Available from CERI]
Contents of this handbook include: Safety concerns when investigating and treating explosives waste; field screening methods for munitions residues in soil; characterization of radioactive contaminants for removal assessment; overview of approaches to detection, retrieval, and disposal of unexploded ordnance; and explanations of relevant technologies.
3. Common Cleanup Methods at Superfund Sites. 1994. 28 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-94/043, OSWER-9203.1-16, PB94-963271. [Available from CERI, NCEPI, NTIS] www.pin.org/eproducts.htm
This booklet contains one-page fact sheets on 11 common cleanup methods used at Superfund sites across the nation. The fact sheets address the following questions: What is the method? How does it work? Where has it been used? What are the reasons for using it?
4. Treatment Technologies Resource Guides. 1995. Approx. 30 pp each. (EPA) U.S. Environmental Protection Agency. [Available from NCEPI]

Groundwater Technology Resource Guide	EPA/542/B-94/009 (TIO)
Bioremediation Resource Guide	EPA/542/B-93/004 (TIO)

Physical/Chemical Treatment Technology Resource Guide	EPA/542/B-94/008 (TIO)
Soil Vapor Extraction Treatment Technology Resource Guide	EPA/542/B-94/007 (TIO)

Each of these resource guides identifies a cross-section of technical information and specialized support services related to the subject technology to aid users in remedial decision-making. Contents include abstracts of field reports and guidance documents, computer systems/databases, pertinent regulations and associated guidance documents, program hotlines, and Federal centers for ordering publications. In addition, each document includes a matrix that allows the user to quickly scan available resources and access more detailed abstracts as needed.

5. Rules of Thumb for Superfund Remedy Selection. 1997. 23 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-97/013, OSWER 9355.0-69, PB97-963301. Washington, DC. [Available from NTIS]

www.epa.gov/superfund/oerr/techres/rulesthm/abstract.htm

This guidance document describes key principles and expectations, interspersed with "best practices" based on program experience, that should be consulted during the Superfund remedy selection process. These remedy selection "Rules of Thumb" are organized into three major policy areas: 1) risk assessment and risk management; 2) developing remedial alternatives; and 3) ground water response actions. The purpose of this guide is to briefly summarize key elements of various remedy selection guidance documents and policies in one publication. For more detailed discussions of these policy areas, consult the National Contingency Plan (NCP) and the guidance documents listed at the end of each section. This guide was developed as one of the Superfund administrative reforms announced by Administrator Carol Browner on October 2, 1995.

B. Risk Assessment

6. a. Risk Assessment Guidance for Superfund: Part A (Volumes I, II), B, C. 1989-1991. 510 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB90-155581, EPA 540/1-89/002. Human Health Evaluation Manual.

[Available from NTIS, Superfund Docket]

cioma40.cin.epa.gov:6003/ (This is the National Environmental Publications Information web site, where you can enter the title of the document, click on the "Search for" button, and locate the document for viewing and printing.)

The document highlights the baseline risk assessment, both human health and environmental (Part A), refinement of preliminary remediation goals (PRGs) (Part B), and the evaluation of remedial alternatives (Part C). It will assist RPMs, site engineers, risk assessors, and others to develop PRGs that satisfy the "threshold criteria" of the NCP, to protect human health and the environment, to comply with ARARs, and to develop and use risk information to evaluate remedial alternatives during the feasibility study. Links between the human health evaluation, environmental evaluation, and the RI/FS are highlighted.

- b. Standard Default Exposure Factors; Supplemental Guidance to Human Health Evaluation Manual. 1991. 17 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER-9285.6-03. Washington, DC. [Available from Superfund Docket]
This guidance supplements the Risk Assessment Guidance for Superfund: Human Health Evaluation Manual (Part A, Volume I, 1989). It was developed to reduce unwarranted variability in the exposure assumptions used to characterize potentially exposed populations in the baseline risk assessment. The document includes two attachments that cover activity specific inhalation rates and estimating adult soil ingestion in the commercial/industrial setting.
- c. Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments (Interim Final). June 2, 1997. 260 pp. attachment. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. EPA 540/R-97/006, OSWER 9285.7-25, PB97-93211. Washington, DC. [Available from NTIS]
This memorandum and guidance transmits the interim final Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments. This guidance was prepared to address the questions posed by Remedial Project Managers and On-Scene Coordinators related to conducting ecological risk assessments, and supersedes Risk Assessment Guidance for Superfund: Part A (Volume II), cited above.
7. Understanding Superfund Risk Assessment. 1992. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. PB9296-3372, OSWER-9285-7-06FS. Fact Sheet. [Available from NTIS, Superfund Docket]
This fact sheet summarizes Superfund's risk assessment process, specifically the four components of an assessment: data collection and evaluation, exposure assessment, toxicity assessment, and risk characterization.
8. CERCLA Baseline Risk Assessment: Reference Manual. 1995. Approx. 120 pp. (DOE) U.S. Department of Energy, Office of Environmental Policy & Assistance, RCRA/CERCLA Division (EH-413). Washington, D.C. [Available from Center for Environmental Management Information]
tis-nt.eh.doe.gov/oepa/guidance/cercla/risk_all.pdf
This document is intended to guide project personnel through the process of interpreting EPA guidance on the CERCLA Baseline Risk Assessment and help project personnel to discuss EPA guidance with regulators, decision makers, and stakeholders as it relates to conditions at a particular DOE environmental restoration site.
9. Understanding Risk: Informing Decisions in a Democratic Society. 1996. 249 pp. National Research Council, National Academy of Sciences, National Academy Press. Paul C. Stern and Harvey V. Fineberg, editors. [Available from National Academy Press]

This book was the result of a project approved by the Governing Board of the NRC, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The book addresses the major dilemma of coping with risk in a democratic society; detailed scientific and technical information is essential for making decisions, but the people who make and live with those decisions are not scientists. The volume offers clear guidelines and principles for informative decision-making about the wide variety of risks to human health and the quality of the environment. Subjects covered include risk characterization, judgment in the risk decision process, deliberation, analysis, integrating analysis and deliberation, implementing the new approach, and principles of risk characterization.

10. Proposed Guidelines for Ecological Risk Assessment. 1996. 80 pp. (EPA) U.S. Environmental Protection Agency. 61 FR 47551. [Available from GPO]
www.epa.gov/ORD/WebPubs/ecorisk/
Developed as part of an interoffice guidelines development program by a technical panel of the Risk Assessment Forum, these proposed guidelines expand upon previous risk assessment guidance, and will help improve the quality of ecological risk assessments at EPA while increasing the consistency of assessments among the Agency's offices and regions.

C. Ground Water

11. Evaluation of Ground-Water Extraction Remedies: Phase 2. Volume 1, Summary Report; and Volume 2, Case Studies and Updates. 1992. 450 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB92-963341CDH, PB92-963347HDM. Washington, DC. [Available from Superfund Docket]
cioma40.cin.epa.gov:6003/ (This is the National Environmental Publications Information web site, where you can enter the title of the document, click on the "Search for" button, and locate the document for viewing and printing.)
This report is the second phase of a study to evaluate the effectiveness of ground water extraction remediation systems at hazardous waste sites. Volume 2 discusses the case studies - individual analyses of each of the 24 sites associated with the project.
12. Estimating Potential for Occurrence of DNAPL at Superfund Sites. 1992. 11 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER 9355.4-07FS, PB92-963338. Washington, DC. [Available from NTIS]
The presence of Dense Non-aqueous Phase Liquids (DNAPL) in soils and aquifers can control the ultimate success or failure of remediation at a hazardous waste site. Because of the complex nature of DNAPL transport and fate, DNAPL may often be undetected by direct methods, leading to incomplete site assessments and inadequate remedial designs. Sites affected by DNAPL may require a different conceptual framework to develop effective characterization and remedial actions. This guide will help determine if DNAPL-based characterization strategies should be employed at a particular site. The approach, which uses historical site use information and site characterization data, is described in the fact sheet.

13. Considerations in Ground-Water Remediation at Superfund Sites and RCRA Facilities: Update. 1992. 13 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB92-963358/HDM, OSWER-9283.1-06. Directive. Washington, DC. [Available from NTIS, Superfund Docket]
This updated directive clarifies and expands OSWER's general policy concerning remediation of contaminated ground water, especially with regard to nonaqueous phase liquid (NAPL) contaminants. The document promotes a consistent and sound approach to ground water remediation at both Superfund sites and RCRA facilities and reinforces OSWER's commitment to clean up ground water contamination.
14. Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration (Interim Final). 1993. 26 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9234.2-25. Washington DC. [Available from Superfund Docket]
This OSWER directive clarifies how EPA will determine whether ground water restoration under Superfund is technically impracticable and what alternative measures or actions must be undertaken to ensure that the final remedy is protective. Topics include the types of technical data and analyses needed to support EPA's evaluation of a particular site as well as the criteria used to make a determination.
15. Evaluation of the Likelihood of DNAPL Presence at NPL Sites: National Results. 1993. 119 pp. (EPA) U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. EPA 540/R-93/073, OSWER-9355.4-13, PB93-963343HDM. Washington, DC. [Available from CERL, NCEPI, NTIS]
This document presents the results of a survey undertaken by EPA to estimate the proportion of NPL sites where subsurface DNAPL contamination may be present. Earlier studies by OERR suggested that DNAPLs may be more common at hazardous waste sites than previously thought.
16. Evaluation of Technologies For *In-Situ* Cleanup of DNAPL Contaminated Sites. 1994. 190 pp. (EPA) U.S. Environmental Protection Agency, Office of Research and Development. Washington, DC. EPA 600/R-94/120, PB94-195039/XAB. [Available from CERL, NTIS]
This report provides a review and technical evaluation of in-situ technologies for remediation of DNAPL contamination occurring below the ground water table. The technologies are reviewed and evaluated on the basis of their theoretical background, field implementation, level of demonstration and performance, waste, technical and site applicability/limitations, cost, and availability.
17. DNAPL Site Characterization. 1994. 12 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/F-94/049, OSWER 9355.4-16FS, PB94-963317. Washington, DC. [Available from NTIS]

Dense non-aqueous phase liquids (DNAPLs), such as some chlorinated solvents, coal tar wastes, creosote based wood-treating oils, and some pesticides, are immiscible fluids with a density greater than water. As a result of widespread production, transportation, use, and disposal of hazardous DNAPLs, there are numerous DNAPL contamination sites in North America. The potential for significant long-term ground water contamination by DNAPL chemicals at many sites is high due to their toxicity, limited solubility (but much higher than drinking water limits), and significant migration potential in soil gas, ground water, and/or as a separate phase liquid. DNAPL chemicals, particularly chlorinated solvents, are among the most prevalent ground water contaminants identified in ground water supplies and at waste disposal sites.

18. Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (Interim Final). 1997. 34 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9200.4-17, PB97-963312. Washington, DC. [Available from NTIS]
www.epa.gov/swerst1/directiv/d9200417.htm
The directive is intended to promote consistency in how monitored natural attenuation remedies are proposed, evaluated, and approved. As a policy document, it does not provide technical guidance on evaluating Monitored Natural Attenuation remedies. This directive is being issued as Interim Final and may be used immediately. It provides guidance to EPA staff, to the public, and to the regulated community on how EPA intends to exercise its discretion in implementing national policy on the use of Monitored Natural Attenuation. The document does not, however, substitute for EPA's statutes or regulations, nor is it a regulation itself and, thus, it does not impose legally-binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the circumstances.
19. Commonly Asked Questions Regarding the Use of Natural Attenuation for Petroleum-Contaminated Sites at Federal Facilities. 1997. 6 pp. (EPA) U.S. Environmental Protection Agency and (DoD) U.S. Department of Defense, Air Force, Army, Navy, and Coast Guard. Washington, DC. [Available from Internet]
www.epa.gov/swerffr/faq.htm
This fact sheet addresses the concerns of petroleum products released into the environment through the process of natural attenuation. Natural attenuation is recognized by the EPA as a viable method of remediation for soil and ground water that can be evaluated and compared to other methods of achieving site remediation as a part of the remedy selection process. Graphics and text boxes are included to further explain the process and concerns.
20. Commonly Asked Questions Regarding the Use of Natural Attenuation for Chlorinated Solvent Spills at Federal Facilities. 1997. 6 pp. (EPA) U.S. Environmental Protection Agency and (DoD) U.S. Department of Defense, Air Force, Army, Navy, and Coast Guard. Washington, DC. [Available from Internet]
www.epa.gov/swerffr/faq.htm

This fact sheet addresses the concerns of chlorinated solvents released into the environment through the process of natural attenuation. Natural attenuation is recognized by the EPA as a viable method of remediation for soil and ground water that can be evaluated and compared to other methods of achieving site remediation as a part of the remedy selection process. Graphics and text boxes are included to further explain the process and concerns.

21. Memorandum: The Role of CSGWPPs in EPA Remediation Programs. April 4, 1997. 13 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9283.1-09. Washington, DC. [Available from NTIS] www.epa.gov/oerrpage/superfnd/web/oerr/techres/roledesc.htm
This directive recommends that EPA remediation programs be familiar with Comprehensive State Ground Water Protection Programs (CSGWPPs) and utilize them as a means of giving more flexibility to a State for management of ground water resources. It also establishes the policy that EPA remediation programs generally should: 1) defer to State determinations of current and future ground water uses, when based on an EPA-endorsed CSGWPP that has provisions for site-specific decisions; and 2) participate in EPA's review and endorsement of CSGWPPs.

D. Soil

22. a. Superfund LDR Guide #6A (2nd Edition): Obtaining a Soil and Debris Treatability Variance for Remedial Actions. 1990. 6 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9347.3-06BFS. Washington, DC. Quick Reference Fact Sheet. [Available from NCEPI]
EPA recently finalized treatment standards for soil and debris. This fact sheet outlines the process for obtaining and complying with a treatability variance for soil and debris that are contaminated with RCRA hazardous wastes before the revised standards were finalized. The Federal Register citation below refers to the recent finalization of the treatment standards described in the fact sheet.
- b. Clarification of Standards for Hazardous Waste Land Disposal Restriction Treatment Variance (Final Rule). December 5, 1997. 7 pp. (EPA) U.S. Environmental Protection Agency. 40 CFR Part 268. Volume 62, Number 234, 64503-64509. Washington, DC. [Available from GPO]
www.access.gpo.gov/su_docs/aces/aces140.html
EPA finalized clarifying amendments to the rule authorizing treatment variances from the national Land Disposal Restrictions (LDR) treatment standards. The clarifying changes adopt EPA's longstanding interpretation that a treatment variance may be granted when treatment of any given waste to the level or by the method specified in the regulations is not appropriate, whether or not it is technically possible to treat the waste to that level or by that method. In response to comment, the Agency indicates in the rule the circumstances when application of the national treatment standard could be found to be "inappropriate," specifically where the national treatment standard is unsuitable from a technical standpoint or where the national treatment standard could lead to environmentally counterproductive results by discouraging needed remediation.

23. Guide to Principal Threat and Low Level Threat Wastes. 1991. 4 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER-9380.3-06FS, PB92-963345. Washington, DC. [Available from NTIS]
The National Oil and Hazardous Substances Pollution Contingency Plan states that the EPA expects to use “treatment to address the principal threats posed by a site, wherever practicable” and “engineering controls, such as containment, for waste that poses a relatively low long-term threat.” The guide explains considerations that should be taken into account in categorizing waste for which treatment or containment generally will be suitable and provides definitions, examples, and ROD documentation requirements related to wastes that constitute a principal or low level threat.

24. Guide: Methods for Evaluating the Attainment of Cleanup Standards for Soils and Solid Media. 1991. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB91-921365/HDM, OSWER-9355.4-04FS. Washington, DC. Fact Sheet. [Available from NTIS, Superfund Docket]
This fact sheet highlights statistical concepts and methods used in the evaluation of the attainment of cleanup standards. It provides an example of a basic procedure for determining sample size required to obtain a given confidence level focusing on a cleanup standard. This fact sheet should be considered a technical reference guide for using some of the more common cleanup methodologies.

25. Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. 1994. 25 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB94-963282, OSWER-9355.4-12, EPA 540/F-94/043. Washington, DC. [Available from NTIS, Superfund Docket]
This guidance document establishes a streamlined approach for determining protective levels for lead in soil at CERCLA sites and RCRA facilities that are subject to corrective action under RCRA section 3004(u) or 3008(h). This interim directive replaces all previous directives on soil lead cleanup for CERCLA and RCRA programs.

26. Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites. 1995. 35 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/S-96/500, PB96-145412. [Available from NTIS, Superfund Docket]
This paper provides scientists investigating hazardous waste sites a summary of the technical issues that need to be considered when determining if a site has elevated levels of inorganics relative to local background concentrations. Issues discussed include a selection of background sampling locations, considerations in the selection of sampling procedures, and statistical analyses for determining whether contaminant levels are significantly different on a potential waste site and a background site. This paper focuses on inorganics and, in particular, metals. Metals with radioactive isotopes that may be included at hazardous waste sites are also included.

27. Soil Screening Guidance. 1996. 12 pp., 439 pp., and 89 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9355.4-14FSA, 9355.4-17A, 9355.4-23; PB96-963501, PB96-963502, PB96-963505. Washington, DC. Quick Reference Fact Sheet, Technical Background Document, and User's Guide. [Available from CERI, NCEPI]
www.epa.gov/superfund/oerr/soil/index.html
This guidance consists of a fact sheet, user's guide, and technical background document. They detail an overall approach for developing Soil Screening Levels (SSLs) for specific contaminants and exposure pathways at hazardous waste sites under a residential land use scenario.

E. Presumptive Remedies

28. Presumptive Remedies: Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soil. 1993. 25 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-93/048, OSWER-9355.0-48FS, PB93-963346. Washington, DC. Quick Reference Fact Sheet. [Available from CERI, NCEPI]
This fact sheet highlights the presumptive remedies for CERCLA sites with soils contaminated by volatile organic compounds. Charts and matrices are employed to explain and compare the various technologies.
29. Presumptive Remedies: Policy and Procedures. 1993. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-93/047, OSWER-9355.0-47FS, PB93-963345. Washington, DC. Quick Reference Fact Sheet. [Available from CERI, NCEPI, NTIS]
This quick reference fact sheet uses a question and answer format to provide a general overview of the presumptive remedies approach, a tool to accelerate cleanups within the Superfund Accelerated Cleanup Model.
30. Presumptive Remedy for CERCLA Municipal Landfill Sites. September 1993. 14 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-93/035, OSWER-9355.0-49FS, PB93-963339. Washington, DC. Quick Reference Fact Sheet. [Available from CERI, NCEPI]
This fact sheet establishes containment as the presumptive remedy for CERCLA municipal landfill sites. It highlights the importance of certain streamlining principles related to the planning of the RI/FS. It also provides clarification of and additional guidance on the level of detail appropriate for risk assessment of source areas and the characterization of hot spots.
31. Presumptive Remedies for Soils, Sediments, and Sludges at Wood Treater Sites. 1995. 53 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. PB95-963410, OSWER-9200.5-162, EPA 540/R-95/128. Washington, DC. [Available from NTIS, Superfund Docket]
www.epa.gov/superfund/oerr/remedy/wood/index.htm

This guidance describes the contaminants generally found at wood treater sites; describes the site characterization and technology screening steps; outlines the data that should be used to select a presumptive remedy; and presents the presumptive remedies for contaminated soils, sediments, and sludges at wood treater sites. The presumptive remedies for wood treater sites with soils, sediments, and sludges contaminated with organic contaminants are bioremediation, thermal desorption, and incineration. The presumptive remedy for wood treater sites with soils, sediments, and sludges contaminated with inorganic contaminants is immobilization.

32. Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide. 1995. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-95/009, OSWER-9355.3-18FS, PB95-963412. [Available from NTIS, Superfund Docket]
This fact sheet identifies data pertinent to landfill cap design that will be required for most sites. These data are organized within six categories: (1) waste delineation; (2) slope stability and settlement; (3) gas generation/migration; (4) existing cover assessment; (5) surface water run-on/run-off management; and (6) clay sources.
33. Presumptive Remedies and NCP Compliance. June 14, 1995. 12 pp. (EPA) U.S. Environmental Protection Agency, CERCLA Administrative Records Workgroup ORC Region IV, Solid Waste and Emergency Response Division. Washington, DC. [Available from the Office of General Counsel]
This memorandum explains the relationship of EPA's presumptive remedies initiative for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site remediation to the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. In addition, it provides suggested methods for Superfund sites where presumptive remedies are considered. EPA is providing this information in response to questions that have been brought to the CERCLA Administrative Records Workgroup and the Office of General Counsel.
34. Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Groundwater at CERCLA Sites. 1996. 73 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-96/023, OSWER-9283.1-12. [Available from Superfund Docket]
This guidance emphasizes the importance of using site-specific remedial objectives as the focus of the remedy selection process for contaminated ground water. It describes a presumptive response strategy for all sites with contaminated ground water, identifies presumptive technologies for treatment of extracted ground water, simplifies the selection of technologies for the ex-situ treatment component of a ground water remedy, and shifts the time and resources employed in remedy selection from ex-situ treatment to more fundamental aspects of the ground water remedy. It includes detailed appendices that describe additional background information, sample ROD language for selected remedies, ex-situ treatment technologies, and descriptions of presumptive treatment technologies.

35. Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance). 1996. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/F-96/007, OSWER-9355.0-62FS, PB96-963307. [Available from NTIS, Superfund Docket]
This directive highlights a step-by-step approach to determining when a specific military landfill is an appropriate site for application of the containment presumptive remedy. It identifies the characteristics of municipal landfills that are relevant to the applicability of the presumptive remedy, addresses characteristics specific to military landfills, outlines an approach to determining whether the presumptive remedy applies to a given military landfill, and discusses Administrative Record documentation requirements.
36. Implementing Presumptive Remedies. 1997. Collection of 21 (1-75 pp.) documents. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. EPA 540/R-97/029. Washington, DC [Available from Superfund Docket]
This notebook contains the current guidance, user's guides, and supplemental information available on specific presumptive remedies, including names and numbers of contacts. The notebook contains some of the documents referenced in this Compendium. It is divided into six chapters that contain copies of fact sheets and other materials on these topics: general fact sheets, volatile organic compounds (VOCs), municipal landfills, wood treaters, contaminated ground water, and Administrative Record requirements. An annotated table of contents is included that contains a brief description explaining each of the documents in the notebook.

II. Removal/Interim Cleanup Measures

37. Required Use of the Removal Cost Management System for All Removal Actions. 1989. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER 9360.0-02, PB91-214288. [*This document is no longer in print; however, it is still useful and available from NTIS, as supplies last. Please see also # 94, Removal Cost Management System User's Guide]
The purpose of this document is to improve Superfund cost management. The directive requires the use of the Removal Cost Management System (RCMS), a computerized cost tracking system, for all future removal actions (see Databases). It describes the background and functions of RCMS, removal cost management policy, and implementation procedures.
38. Superfund Removal Procedures Action Memorandum Guidance. 1990. 64 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB90-274473, OSWER 9360.3-01, EPA 540/P-90/004. [Available from NTIS, Superfund Docket]
cioma40.cin.epa.gov:6003/ (This is the National Environmental Publications Information web site, where you can enter the title of the document, click on the "Search for" button, and locate the document for viewing and printing.)

This report provides EPA response officials with a uniform, Agency-wide guidance on removal actions. Also included are National Contingency Plan definitions relevant to the program, removal policies as determined by OERR, and step-by-step directions for preparation and approval of documentation.

39. Superfund Removal Procedures Directives Notebook. 1991. Collection of 40 documents. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OERR 9200.0-10A, OERR-9200.0-10B. [Available from the Superfund Docket to EPA personnel only]
This two-volume set complements the Superfund Removal Procedures Manual, containing many documents to which the manual refers. The Notebook contains up-to-date policy and guidance documents of interest to removal personnel. It is organized by subject category (e.g., removal actions, RCRA, alternative technologies, enforcement, administrative/cost management).
40. Memorandum: Managing the Corrective Action Program for Environment Results: The RCRA Facility Stabilization Effort. 1991. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. No publication number available. Washington, DC. [Available from Superfund Docket]
The purpose of this memo is to provide important guidance documents that have been developed to ease the implementation of the RCRA facility stabilization effort, including the RCRA Stabilization Strategy and a flow chart outlining Key Decision Points for Selecting Interim Measures. These documents emphasize more frequent use of interim actions to achieve near term environmental results at facilities with the most serious problems. While final cleanup is still the long-term goal for the corrective action program, this strategy emphasizes the importance of controlling releases and stabilizing sites to prevent the further spread of contamination.
41. Guide to Removal Enforcement. 1992. 4 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB92-963419. Washington, DC. [Available from NTIS]
This fact sheet summarizes a Superfund Removal Procedures volume entitled "Removal Enforcement Guidance for On-Scene Coordinators," describing the essential components of the removal enforcement process along with Agency enforcement initiatives stemming from the Management Review of the Superfund Program (the "90-Day Study").
42. Memorandum: Final Revised Draft Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA. 1993. 42 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-93/057, OSWER 9360.0-32, PB93-963402. Washington, DC. [Available from CERL, NCEPI, NTIS]
This guidance is designed to help on-scene coordinators and remedial project managers ensure that non-time-critical removal actions are conducted in accordance with applicable laws, regulations, and EPA policy. The guidance focuses on those aspects of the removal process that are unique to non-time critical removal actions.

43. CERCLA Removal Actions. 1994. Approx. 220 pp. (DOE) U.S. Department of Energy, Office of Environmental Guidance, RCRA/CERCLA Division (EH-231)/Office of Environmental Restoration Regulatory Integration Division (EM-431). [Available from Center for Environmental Management Information] tis-nt.eh.doe.gov/oepa/guidance/alldocs.htm
This document is intended to provide: (1) an overview of the regulatory requirements for conducting a CERCLA removal action; (2) step by step procedures for identifying the need for, assessing, conducting, and closing out a removal action; and (3) a quick, ready-reference guide to decision-making and implementation.

III. Remedy Selection

44. Guide to Selecting Superfund Remedial Actions. 1990. 9 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB90-273863/HDM, OSWER 9355.5-0-27/FS. Washington, DC. Fact Sheet. [Available from NTIS]
This fact sheet describes the statutory requirements for CERCLA remedies at hazardous waste sites and the process EPA has established in the NCP for meeting those requirements.
45. a. CERCLA Compliance with Other Laws Manual: Part 1 (Interim Final). 1988. 244 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/G-89/006, OSWER 9234.1-01, PB90-272535. Washington, DC. [Available from NTIS]
The manual is developed to provide guidance to Remedial Project Managers (RPMs), State personnel at State-lead Superfund sites, On-Scene Coordinators (OSCs), and other persons responsible for planning response actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The guidance is intended to assist in the selection of on-site remedial actions that meet the applicable, or relevant and appropriate requirements (ARARs) of the Resource Conservation and Recovery Act (RCRA), Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Clean Air Act (CAA), and other Federal and State environmental laws as required by CERCLA.
- b. CERCLA Compliance with Other Laws Manual: Part 2; Clean Air Act and Other Environmental Statutes and State Requirements (Interim Final). 1990. 11 pp. (EPA) U. S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/G-89/009, PB90-272550. Washington, DC. [Available from NTIS]
This guidance manual addresses CERCLA compliance with the Clean Air Act and other environmental statutes for remedial action, and is designed to assist remedial project managers in identifying and complying with all applicable, relevant or appropriate requirements for remedial actions taken at Superfund sites.
46. Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. 1991. 11 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB91-921359/HDM, OSWER 9355.0-30. Directive. Washington, DC. [Available from NTIS, Superfund Docket]

The objective of this memorandum is to provide further guidance on how to use the baseline risk assessment to make risk management decisions, such as determining whether remedial action under CERCLA Sections 104 or 106 is necessary. The memorandum also clarifies the use of the baseline risk assessment in selecting appropriate remedies under CERCLA Section 121, promotes consistency in preparing site-specific risk assessments, and helps ensure that appropriate documentation from the baseline risk assessment is included in Superfund remedy selection documents.

47. Land Use in the CERCLA Remedy Selection Process. 1995. 13 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-95/052, OSWER 9355.7-04, PB95-963234/HDM. Directive. Washington, DC. [Available from CERL, NCEPI]
This directive presents additional information for considering land use in making remedy selection decisions under CERCLA at NPL sites. Specifically, EPA emphasizes that early community involvement (with a particular focus on the community's desired future uses of property associated with the CERCLA site) should result in a more democratic decision-making process, greater community support for remedies selected as a result of this process, and more expedited, cost-effective cleanups.
48. Role of Cost in the Superfund Remedy Selection Process. 1996. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/F-96/018, OSWER 9200.3-32FS, PB96-963245. Washington, DC. [Available from NTIS]
The fact sheet describes the role of cost in selection of remedial actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The objective of this fact sheet is to clarify the current role of cost as established in existing law, regulation, and policy. This fact sheet describes the current role of cost as established by the Superfund regulations [the National Oil and Hazardous Substances Contingency Plan (NCP)], and as expanded upon in EPA guidance.
49. National Consistency in Superfund Remedy Selection (Draft). 1996. 11 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Washington, DC. [Available from Superfund Docket]
The memorandum emphasizes the critical importance of appropriate national consistency in the Superfund remedy selection process, and encourages program managers to make full use of existing tools and consultation opportunities to promote such consistency. With Congress continuing its efforts to consider statutory improvements to CERCLA, the program must close the perceived gap between national policies and the reality of program implementation.

IV. Record of Decision

50. Guide to Addressing Pre-ROD and Post-ROD Changes. 1991. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER 9355.3-02FS-4, PB91-921351. [Available from NTIS]

This fact sheet outlines the methods of categorizing pre- and post-ROD changes and the ways in which changes should be documented. More detailed guidance for pre-ROD changes and both significant and fundamental post-ROD changes can be found in chapters 5 and 8, respectively, of "Guidance on Preparing Superfund Decision Documents," found in this section of the Compendium.

51. The Road to ROD: Tips for Remedial Project Managers. 1992. 58 pp. (EPA) U.S. Environmental Protection Agency/(DoD) U.S. Department of Defense. EPA 903/R-92/001. [Available from Region 3 Public Environmental Education Center]
This guide is designed to provide EPA and DoD project managers with an overview of the Record of Decision (ROD) process, and to identify opportunities for expediting the ROD process at DoD sites on the National Priorities List.
52. a. Guidance on Preparing Superfund Decision Documents: The Proposed Plan, The Record of Decision, Explanation of Significant Differences, The Record of Decision Amendment. 1989. 223 pp. (EPA) U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. PB91-921265, EPA 540/G-89/007. [Available from NTIS]
The guidance presents standard formats for documenting Superfund remedial action decisions; clarifies the roles and responsibilities of EPA, States, and other Federal agencies in developing and issuing decision documents; and explains how to address changes made to proposed and selected remedies. The decision documents addressed by the guidance are the Proposed Plan, the Record of Decision, the Explanation of Significant Differences, and the ROD Amendment. The document has four fact sheets attached that include: A Guide to Developing Superfund Records of Decision; A Guide to Developing Superfund Proposed Plans; A Guide to Developing Superfund No Action, Interim Action, and Contingency Remedy RODs; and A Guide to Addressing Pre-ROD and Post-ROD Changes.
- b. Guidance on Preparing Superfund Decision Documents: The Proposed Plan, The Record of Decision, Explanation of Significant Differences, The Record of Decision Amendment (Preliminary Draft). 1992. Approx. 225 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. OSWER 9355.3-02. [Available from Superfund Docket]
This preliminary draft does not replace the document cited above; rather it acts as a supplement. The final version will be completed in 1998.
53. Record of Decision Plug-In and Presumptive Remedy Approach. Indian Bend Wash Superfund Site. Section 8.1.2 - 8.1.4. 1993. Approx. 40 pp. (EPA) U.S. Environmental Protection Agency. PB95-593551GEI, ROD ID# EPA/ROD/R09-93/098, EPA ID# AZD980695969. [CD-ROM available from NTIS]
This ROD document outlines the rationale and process for utilizing the plug-in approach to remedy selection at Superfund sites. The approach can be used when a Superfund site contains multiple areas or "subsites" that are similar physically and share similar contaminants. Instead of matching several remedies to a single subsite, the plug-in approach matches several subsites to a single remedy.

54. Fort Ord (No Action Plug-In Record of Decision), Fort Ord, CA. Section 1.0 - 3.0. 1995. Approx. 20 pp. (EPA) U.S. Environmental Protection Agency. PB95-964508, ROD ID# EPA/ROD/R09-95/138. [Available from NTIS]
This ROD document presents the no-action "plug-in" approach applied at Fort Ord, CA. The no-action plug-in approach describes the process for identifying a no-action site, named because the Approval Memorandum plugs in subsequent to ROD issuance.

V. Remedial Design/Action Process

55. Guidance on Oversight of PRP Performed Remedial Designs and Remedial Actions. 1990. 56 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB90-249707/HDM. Directive. Washington, DC. [Available from NTIS]
This OSWER directive clarifies how EPA will determine whether ground water restoration under Superfund and RCRA Corrective Action is technically impracticable. This directive provides interim final guidance on EPA oversight of Remedial Design and Remedial Actions. It ensures that remedies being conducted by PRPs are protective of the public health and environment, and are in compliance with applicable performance standards.
56. Guidance on Expediting Remedial Design and Remedial Action. 1990. 57 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/G-90/006, OSWER 9355.5-02, PB90-273871. [Available from NTIS, Superfund Docket]
This document examines how to expedite remedial design and remedial action so that cleanup activities can be completed more quickly. It is intended for use by remedial project managers, remedial design contractors, and others involved in the planning of remediation activities. It should be used as a means to evaluate whether a project is suited for expediting and to determine the methods that could be used.
57. RCRA Corrective Action & CERCLA Remedial Action Reference Guide. 1994. 17 pp. (DOE) U.S. Department of Energy, Office of Environmental Guidance. DE95002644/HDM, DOE/EH-0001. Washington, DC. [Available from CEMI]
www.em.doe.gov/rcracerc/
This reference guide provides a side-by-side comparison of RCRA corrective action and CERCLA Remedial Action, focusing on the statutory and regulatory requirements under each program, criteria and other factors that govern a site's progress, and the ways in which authorities or requirements under each program overlap and/or differ.
58. Remedial Design/Remedial Action Handbook. 1995. 317 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-95//059, OSWER 9355.0-04B, PB95-963307. [Available from NTIS, Superfund Docket]
The purpose of this handbook is to provide the Remedial Project Managers (RPMs) with an overview of the remedial design (RD) and remedial action (RA) processes. It should be most useful for Federal-lead sites where Superfund is used to finance the RD or RA. The RD/RA Handbook focuses on how an RPM can use project management principles to implement effectively a selected remedy in accordance with the Record of Decision.

59. Guidance for Scoping the Remedial Design. 1995. Approximately 220 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-95/025. Washington DC. [Available from CERI, NCEPI]
This guidance provides EPA Remedial Project Managers with information about preparing the Statement of Work to facilitate remedial design for Superfund cleanup projects. It includes instructions for preparing a Project Management Plan, remediation schedules, cost estimates, and model SOWs for oversight of Fund-lead projects and for Remedial Design oversight.
60. a. Memorandum: Coordination Between RCRA Corrective Action and Closure and CERCLA Site Activities. 1996. 9 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Enforcement and Compliance. Washington, DC. [Available from Superfund Docket]
This memorandum focuses on coordination between CERCLA and RCRA cleanup programs; however, the approaches outlined in the memo are also applicable to coordination between either of these programs and certain State or tribal cleanup programs that meet appropriate criteria. The memo covers topics such as Acceptance of Decisions Made by Other Remedial Programs, Program Deferral, Coordination Between Programs, and RCRA Closure and Post-Closure. Attached are copies of the relevant Federal Register notices.
- b. Memorandum: Lead Regulator Policy for Cleanup Activities at Federal Facilities on the National Priorities List. November 6, 1997. 9 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Enforcement and Compliance Assurance. Washington, DC. [Available from Internet]
www.epa.gov/swerffrr/guide.htm
This policy furthers the Resource Conservation and Recovery Act (RCRA)/CERCLA coordination concepts presented in the guidance document cited above, and focuses on the special, unique coordination issues associated with Federal facilities listed on the NPL. The RCRA/CERCLA coordination memorandum should continue to be used as the controlling guidance for private sites and for non-NPL Federal facilities.
61. Advance Notice of Proposed Rule-making (CPNR) for the RCRA Corrective Action Program. 1996. 33 pp. (EPA) U.S. Environmental Protection Agency. 61 FR 19432. [Available from GPO]
This action introduces EPA's strategy for promulgating regulations governing corrective action for releases from solid waste management units at hazardous waste management facilities under RCRA, seeking to identify and develop potential improvements to the protectiveness, responsiveness, speed, or efficiency of corrective actions. It also includes a general status report on the corrective action program and how it has evolved since the 1990 proposal, and provides guidance on a number of topics not fully addressed in 1990. Lastly, it emphasizes areas of flexibility within the current program and describes program improvements currently underway or under consideration.

62. Memorandum: Superfund Reforms: Updating Remedy Decisions. March 27, 1997. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Office of Site Remediation Enforcement. OSWER 9200.0-22. Washington, DC. [Available from NTIS]
www.epa.gov/superfund/oerr/remedy/remedy.htm
The purpose of this Superfund Reform is to encourage appropriate changes to remedies selected in existing Superfund Records of Decision (RODs). These updates are intended to bring past decisions into line with the current state of knowledge with respect to remediation science and technology and, by doing so, improve the cost effectiveness of site remediation while ensuring reliable short- and long-term protection of human health and the environment. Remedy changes will be completed in accordance with existing regulations and guidance, which call for a memorandum to the file, an Explanation of Significant Differences, or a ROD amendment, as appropriate for the significance of the change. Cleanup levels are not expected to change absent a showing that remediation levels are unattainable.
63. Memorandum: Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination. August 22, 1997. 22 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9200.4-18. [Available from NTIS]
www.epa.gov/radiation/cleanup/BBS_tbl.htm
This memorandum presents clarifying guidance for establishing protective cleanup levels for radioactive contamination at Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. The policies stated in this memorandum are inclusive of all radioactive contaminants of concern at a site including radon. The directive is limited to providing guidance regarding the protection of human health and does not address levels necessary to protect ecological receptors.

VI. Air Emissions

64. Control of Air Emissions from Materials Handling During Remediation. 1991. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response/Office of Research and Development. EPA 540/2-91/023. Washington, DC. Engineering Bulletin. [Available from CERL, NCEPI]
This bulletin discusses the importance of and methods for controlling emissions into the air from material handling processes at Superfund or other hazardous waste sites. It also describes several techniques used for dust and vapor suppression that have been applied at Superfund sites.
65. Control of Air Emissions from Superfund Sites. 1992. 146 pp. (EPA) U.S. Environmental Protection Agency, Office of Research and Development. EPA 625/R-92/012. Washington, DC. Handbook. [Available from CERL]
This handbook evaluates air emission control devices for use in conjunction with Superfund remediation technologies and provides guidance on the selection of cost-effective control options.

VII. Underground Storage Tanks

66. How to Evaluate Alternate Cleanup Technologies for UST Sites. 1995. Approx. 300 pp. (EPA) U.S. Environmental Protection Agency. EPA 510/B-95/007. [Available from CERL, NTIS]
www.epa.gov/swerust1/pubs
Details the use of alternative cleanup technologies and processes for remediation of underground storage tanks.
67. How to Effectively Recover Free Product at Leaking Underground Storage Tank Sites: A Guide for State Regulators. September 1996. 180 pp. (EPA) U.S. Environmental Protection Agency. EPA 510/R-96/001, 055-000-00553-2. [Available from GPO]
www.epa.gov/swerust1/pubs
This guide will help underground storage tank regulators understand the portion of an underground storage tank corrective action plan that proposes free product recovery technologies. It focuses on appropriate technology use, taking into consideration site-specific conditions. The guide is designed to answer three basic questions: (1) Is free product recovery necessary? (2) Has an appropriate method been proposed for free product recovery? and (3) Does the free product recovery plan provide a technically sound approach to remediation of the site? The discussions include calculations, figures, tables, flow charts, a list of selected key references, and a glossary of relevant terms.

VIII. Innovative Technologies

68. Procuring Innovative Technologies at Remedial Sites: Q's and A's and Case Studies. 1992. 24 pp. (EPA) U.S. Environmental Protection Agency, Technology Innovation Office. EPA 542/F-92/012. [Available from NCEPI]
This fact sheet, designed to encourage consideration of innovative technologies for site remediation, summarizes the results of interviews with EPA RPMs and Contracting Officers (COs) and U.S. Army Corps of Engineers (COE) personnel concerning their experiences in procuring innovative treatment technologies for use at Superfund sites. The results of the interviews are presented in question-and-answer format. In addition, detailed information on the sites discussed is presented in tabular form.
69. Innovative Treatment Technologies: Annual Status Report (Seventh Edition). 1995. 77 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 542/R-95/008. Washington, DC. [Available from NCEPI]
clu-in.com/pubalpha.htm#I
This yearly report documents and analyzes the selection and use of innovative treatment technologies in the U.S. EPA Superfund program and at some non-Superfund sites under the jurisdiction of the Departments of Defense (DoD) and Energy (DOE).
70. Bibliography for Innovative Site Clean-Up Technologies. 1996. 11 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 542/B-96/003. [Available from the Superfund Docket]
clu-in.com/pubalpha.htm#B

This compilation of publications and survey reports on innovative site cleanup technologies provides titles and information on how to obtain these documents. These resources are alphabetically indexed under the following major headings: technical survey reports, EPA program information, ground water in situ treatment, thermal treatment, bioremediation, soil vapor extraction and enhancement, physical/chemical treatment, site characterization, other conferences and international surveys, technical support, community relations, bulletin board systems/databases/software/Internet resources, technology newsletters, innovative site remediation engineering technology monographs, and ordering information.

IX. Post-Remedial Actions

71. a. Memorandum: Structure and Components of Five-Year Reviews. May 23, 1991. 14 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. OSWER 9355.7-02, PB91-921369. Washington, DC. [Available from NTIS]
The purpose of this directive is to provide guidance for planning and conducting five-year reviews. The directive focuses primarily on the implementation of five-year reviews and the issues associated with implementation. These include: triggering points for reviews, responsibilities and funding, content, and results of reviews. The goal of the directive is to assure that reviews are implemented in a consistent manner nationally, with appropriate consideration of local concerns and widely varying site conditions.
- b. Memorandum: Supplemental Five-Year Review Guidance. July 26, 1994. 4 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. OSWER 9355.7-02A, PB94-963283. Washington, DC. [Available from NTIS]
The purpose of this memorandum is to amend OSWER directive 9355.7-02 (May 23, 1991), "Structure and Components of Five-Year Reviews," by providing supplemental guidance on the five-year review process and ensure the effective and efficient use of program resources. Specifically, this supplemental guidance: changes the trigger date for policy reviews to construction completion; provides a prioritization plan for conducting five-year reviews when Regions cannot conduct all required reviews; clarifies responsibility for conduct of five-year review that covers all operable units (OUs) at a site; introduces a streamlined Type Ia review at sites where construction is ongoing; and provides model language.
- c. Memorandum: Second Supplemental Five-Year Review Guidance. December 21, 1995. 12 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response. OSWER 9355.7-03A. Washington, DC. [Available from EPA Headquarters Library]
This second supplement to the 1991 memo, described above, implements OSWER's response to an OIG audit of the Five-Year Review process. OSWER further clarified: 1) what is meant by "on-going presence" at a site; 2) what is considered to be a "recent" site visit; and 3) items which need to be documented: (a) milestones used to implement recommendations contained in five-year reviews; (b) who has responsibility to perform each recommendation; and (c) which agency has over site authority.

72. Close Out Procedures for National Priorities List Sites. 1995. 108 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-95/062, OSWER 9320.2-09, PB95-963241. [Available from NTIS, Superfund Docket]
This guidance document is designed primarily for use by RPMs. It provides procedural information on accomplishing operable unit completion, construction completion, site completion, and site deletion. This guidance applies only to those sites that are or were on the final NPL. It supersedes the OSWER directive 9320.2-34, Procedures for Completion and Deletion of National Priorities List Sites.
73. Memorandum: Procedures for Partial Deletions at NPL Sites. April 30, 1997. 8 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9320.2-11, EPA 540/R-96/014, PB96-963222. Washington, DC. [Available from NTIS]
www.epa.gov/swerffrr/guide.htm
The Environmental Protection Agency (EPA) is changing its policy concerning deletion of sites listed on the National Priorities List (NPL). EPA will now delete releases of hazardous substances at portions of sites, if those releases qualify for deletion. Sites, or portions of sites, that meet the standard provided in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), i.e., no further response is appropriate, may be the subject of entire or partial deletion. EPA expects that this action will help to promote the economic redevelopment of Superfund sites, and will better communicate the completion of successful partial cleanups. This memorandum also contains a number of helpful attachments such as the Federal Register Notice, a Data Collection Form, and Example Partial Deletion Notice of Intention to Delete (NOID).

X. Federal Facilities/Interagency Guidance

A. General

74. Federal Facilities Compliance Strategy. 1988. Approx. 350 pp. (EPA) U.S. Environmental Protection Agency, Office of Federal Facilities. Washington, DC. [Available from NTIS]
This document, also known as the "Yellow Book," provides the basic framework for all EPA media programs (e.g. air, ground water, hazardous waste, etc.) The objective of this manual is to compile guidance on how to establish a comprehensive and practice approach to achieving compliance at Federal facilities. It also attempts to reconcile EPA's dual responsibilities to provide technical assistance and advice to Federal facilities pursuant to Executive Order No. 12088, and our statutory authorities to take enforcement actions for violations at Federal facilities in appropriate circumstances.
75. National Oil and Hazardous Substances Pollution Contingency Plan (NCP). 1990. 82 pp. (EPA) U.S. Environmental Protection Agency. 55 FR 8666. EPA 540/890/012. [Available from GPO, Superfund Docket]
www.epa.gov/superfund/oerr/er/regs/ncpover.htm

The cornerstone of the Oil program's planning activities is the revised NCP, which outlines procedures and responsibilities for addressing potential oil and hazardous substance spills and discharges. This plan coordinates with and is bolstered by a number of similar Federal contingency plans, all of which are capable of handling "worst case discharges" of varying sizes and magnitudes.

76. Remediation Technologies Screening Matrix and Reference Guide, Second Edition. 1994. Approx. 430 pp. Federal Remediation Technologies Roundtable. EPA 542/B-94/013, PB95-104782. [Available from NCEPI and NTIS]
clu-in.com/pubalpha.htm#R
This interagency guide presents a comprehensive evaluation of candidate cleanup technologies for contaminated installations and waste sites for use by remedial project managers in selecting a remedial alternative. The guide includes sections on: contaminant perspectives, treatment perspectives, and treatment technology profiles.
77. Memorandum: Guidance on Accelerating CERCLA Environmental Restoration at Federal Facilities. 1994. 9 pp. (EPA) U.S. Environmental Protection Agency/U.S. Department of Energy/U.S. Department of Defense. [Available from U.S. EPA, Federal Facilities Restoration and Reuse Office]
This document supports efforts at Federal facilities to accelerate and develop streamlined approaches to the cleanup of hazardous waste. Topics covered include site assessment, early vs. long-term actions, presumptive remedies, public participation, effects on existing Federal facility interagency agreements, and decision teams.
78. Guide to Documenting Cost and Performance for Remediation Projects. 1995. 55 pp. Federal Remediation Technologies Roundtable. EPA 542/B-95/002. [Available from NCEPI]
clu-in.com/pubalpha.htm#G
The guide fosters the use of consistent procedures to document cost and performance information for projects involving treatment of contaminated media. It provides site remediation project managers with a standardized set of parameters to document completed remediation projects.
79. The National Priorities List for Uncontrolled Hazardous Waste Sites; Listing and Deletion Policy for Federal Facilities (Interim Final). 1997. 7 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. 40 CFR Part 300. Washington, DC. [Available from GPO]
www.epa.gov/swerffrr/guide.htm
EPA is announcing two interim final policy revisions relating to the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"). CERCLA requires that the NCP include a list of national priorities among the known or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States, and that the list be revised at least annually. The National Priorities List ("NPL"), promulgated as Appendix B of the NCP, constitutes this list. In this notice, EPA sets forth the criteria the Agency will consider in determining when a Federal facility site may not be placed on the NPL because the cleanup is to be conducted as part of RCRA.

80. Final Report of the Federal Facilities Environmental Restoration Dialogue Committee (FFERDC): Consensus Principles and Recommendations for Improving Federal Facilities Cleanup. 1997. 120 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Federal Facilities Restoration and Reuse Office. EPA 540/R-96/013, OSWER 9272.0-7A, and PB96-963221. Washington, DC. [Available from GPO]

www.epa.gov/swerffrr/partner.htm

In producing this Final Report, the Committee has built on the recent successes of agency and community efforts to involve stakeholders and include recommendations that consider the lessons learned from these efforts. The Committee clarifies the intent of recommendations in the Interim Report where misunderstandings have developed and offers new recommendations to address the changing environment in which Federal facilities cleanup decisions are being made. These recommendations attempt to create an open, public consultative process that originates at the facility level and extends through the entire hierarchy of the Federal government. The Committee recognizes that all facilities, agencies, and communities have unique structures, histories, and concerns, and thus encourage flexible approaches based upon the principles of inclusiveness, openness, and accountability.

B. Department of Defense

81. Navy/Marine Corps Installation Restoration Manual (Draft). 1992. 125 pp. (DoD) Department of Defense, U.S. Navy. [Available from Naval Facilities Engineering Command]
This manual provides a compilation of Defense Environmental Restoration Program (DERP) requirements, policy, and guidance for both the Navy and Marine Corps. The laws and regulations defining the Installation Restoration Program are also summarized.
82. U.S. Army Installation Restoration Program Guidance Manual. 1993. 138 pp. (DoD) Department of Defense, U.S. Army, U.S. Army Environmental Center. Aberdeen Proving Ground, MD. [Available from DTIC]
This manual addresses the requirements of the laws, regulations, policies, and procedures concerning the Installation Restoration Program (IRP) and the issues involved in their implementation. The manual presents a framework within which managers are expected to use well-informed judgment to provide effective, timely, and cost-effective responses to the requirements of the program.
83. EPA/Navy CERCLA Remedial Action Technology Guide. 1993. 121 pp. (EPA) U.S. Environmental Protection Agency. Naval Facilities Engineering Services Center. AD-A274 797/0/HDM. Port Hueneme, CA. [Available from NTIS]
This document provides guidance on remedial action technologies focusing on permanence and treatment. It provides information on selecting remedies that “utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable” and refers to remedial actions in which treatment “permanently and significantly reduces the volume, toxicity, or mobility of hazardous substances, pollutants, and contaminants as a principal element.”

84. Presumptive Remedy Engineering Evaluation Cost Analysis (PREECA). 1995. 56 pp. (DoD) Department of Defense, U.S. Air Force. Prepared for U.S. Army Corps of Engineers, Omaha District, Omaha, Nebraska 68102-4978. Project Number: MUHJ947065. [Available from U.S. Air Force, Environmental Restoration Flight]
This document is a standardized "decision framework" that specifies the criteria necessary to implement a removal action utilizing a presumptive remedy technology. A primary goal of the Department of Defense Installation Restoration Program is to achieve early and substantial risk reduction at sites posing significant risk to human health and the environment. The document supports this goal by standardizing a significant portion of the remedy selection process so that streamlined implementation of cleanup actions at high-risk sites can occur.
85. PR'98 Environmental Compliance Cookbook (Draft). 1995. 110 pp. (DoD) Department of Defense, U.S. Navy, Chief of Naval Operations. [Available from Naval Facilities Engineering Command]
This document provides information on the broad range of environmental compliance requirements faced by Navy activities. The document also assists installation-level personnel in determining which requirements are applicable to their installations and provides guidance for determining the budgetary costs of compliance with those requirements.
86. Defense Environmental Restoration Annual Report to Congress, Fiscal Year 1996 (Volume 1 of 2) 1997. Approx. 350 pp. (DoD) Department of Defense Environmental Cleanup Office, Washington, DC. [Available from GPO]
www.dtic.mil/envirodod/derpreport96/vol1/
This annual report showcases the progress and accomplishments of the Department of Defense's environmental restoration program. It provides an index of summaries describing environmental restoration success stories on a site-by-site basis and, when available, points of contact who are willing to share materials and information regarding their specific program. Subjects covered include fast-track cleanup programs, accelerating cleanup, environmental technology, building partnerships, and use of the Defense and State Memorandum of Agreement (DSMOA).
87. Proposed Rule on Restoration Advisory Boards (RABs). 1996. 8 pp. (DoD) U.S. Department of Defense, Office of the Assistant Deputy Under Secretary of Defense (Environmental Cleanup). 61 FR 40764. [Available from GPO]
www.dtic.mil/envirodod/rab/rab_fedr.html
The Department of Defense (DoD) has developed proposed regulations regarding the characteristics, composition, funding, and establishment of Restoration Advisory Boards (RABs) in response to section 324 of the National Defense Authorization Act for FY 1996 (Pub L. 104-106), which requires the Secretary of Defense to prescribe regulations regarding RABs. The purpose of a RAB is to facilitate public participation in DoD environmental restoration activities at operating and closing DoD installations where local communities express interest in the program. The proposed regulations are based on DoD's current policies for establishing and operating RABs as well as its experience in establishing RABs over the past two years.

C. Department of Energy

88. The Streamlined Approach for Environmental Restoration (SAFER). 1994. Approx. 50 pp. (DOE) U.S. Department of Energy. [Available from Center for Environmental Management Information]
This document provides an overview of the U.S. DOE's Streamlined Approach for Environmental Restoration (SAFER) process. The process is a marriage of primary components of the Data Quality Objective process and the Observational Approach to environmental restoration. SAFER is designed to expedite cleanup, as well as to offer cost-saving and safe-handling remediation tips.
89. Memorandum: Policy on Decommissioning of Department of Energy Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). 1995. 7 pp. (EPA) U.S. Environmental Protection Agency/U.S. Department of Energy. Fact Sheet. [Available from U.S. EPA, Federal Facilities Restoration and Reuse Office]
This fact sheet establishes the approach agreed upon by EPA and DOE for decommissioning surplus DOE facilities consistent with the requirements of CERCLA. The policy is the result of a joint effort by EPA and DOE to develop a decommissioning approach that ensures protection of worker and public health and the environment, is consistent with CERCLA, provides for stakeholder involvement, and achieves risk reduction without unnecessary delay.

XI. Quality Assurance

90. Data Quality Objectives Process for Superfund, Workbook. 1993. 37 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. OSWER 9355.9-01A, EPA 540/R-93/078, PB94-963204. Washington, DC. [Available from NTIS]
This workbook is intended as a companion to the "Data Quality Objectives Process for Superfund, Interim Final Guidance." The workbook assists the user in implementing the DQO process for Superfund by providing concise descriptions of each of the seven steps as well as space to document the outputs of the current study. The workbook is organized in a sequential, step-by-step fashion to help the user consider all aspects in the DQO planning process.
91. Data Quality Objectives Process for Superfund, Interim Final Guidance. 1993. 121 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, OSWER 9355.9-01, EPA 540/R-93/071, PB94-963203. Washington, DC. [Available from NTIS]
This document provides guidance on developing Data Quality Objectives (DQOs) for Superfund sites. The DQO process is a series of planning steps based on the Scientific Method that is designed to ensure that the type, quantity, and quality of environmental data used in decision making are appropriate for the intended application. The DQO process was developed by EPA to help Agency personnel collect data that are important to decision-making.
92. Superfund Administrative Reforms Annual Report. 1996. 55 pp. (EPA) U.S.

Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-96/046, OSWER 9200.0-23, PB96-963268. Washington, DC. [Available from NTIS]

www.epa.gov/oerrpage/superfnd/web/oerr/admin/toc.htm

This EPA report highlights the substantial progress that has been made to make Superfund cleanups faster, fairer, and more efficient and resulting in more than two-thirds of all Superfund sites either completed or under cleanup construction. Since 1993, EPA has launched three rounds of administrative reforms, consisting of more than 60 initiatives. The reforms consist of various initiatives and pilot projects focusing on changes to the program that were implemented within the existing statutory framework. The report looks at the accomplishments of the second and third rounds of EPA's Superfund reforms.

XII. Databases/Users' Manuals

A. General

93. Integrated Risk Information System (IRIS) for IBM PC Microcomputers and IBM PC/AT Microcomputers. 1988. (EPA) U.S. Environmental Protection Agency, Office of Research and Development. EPA DF/DK-88/050, PB88-215892; EPA/DF/DK-88/049, PB88-215884. [Available from NTIS]

www.epa.gov/ngispgm3/iris/index.html

The Integrated Risk Information System (IRIS) is an on-line database of toxicity information that is updated monthly. IRIS provides quantitative human health carcinogenic/hazard data, Ambient Water Quality Criteria, and Maximum Contaminant Levels. This database is EPA's preferred source of toxicity data. Chemicals added to IRIS are reviewed in an Agency-wide process and represent a consensus on the toxicological data for each record.

94. Removal Cost Management System (Version 3.2) User's Guide. 1990. 211 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/P-90/003, OSWER 9360.0-02C, PB90-272691. [Available from NTIS, Superfund Docket]

The user's guide for the Removal Cost Management System (RCMS) is specifically designed to serve as a reference manual for software used to perform cost projections and daily cost tracking. This guide can also be used to create Cost Projection reports, the 1900-55 Form, a Daily Cost Summary, an Incident Obligation Log, and Site Summary Reports.

95. Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK):
- a. Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Version 0.99D. 1994. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. PB94-501517. [Available from NTIS]
The Integrated Exposure Uptake Biokinetic (IEUBK) is a menu-driven, user-friendly model designed to determine exposure from lead in air, water, soil, dust, diet, paint, and other sources. Pharmacokinetic modeling is used to predict blood lead levels in children 6 months to 7 years of age. The four main components of the current IEUBK model are: (1) an exposure model that relates environmental lead concentrations to age-dependent intake of lead into the gastrointestinal tract; (2) an absorption model that relates lead intake into the gastrointestinal tract and lead uptake into the blood; (3) a biokinetic model that relates lead uptake in the blood to the concentrations of lead in several organ and tissue compartments; and (4) a model for uncertainty in exposure and for population variability in absorption and biokinetics. This model should be used in conjunction with the Guidance Manual and other supporting documentation described below.
 - b. Guidance Manual for the Integrated Exposure Uptake Biokinetic Model for Lead in Children. 1994. 259 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-93/081, OSWER 9285.7-15-1, PB93-963510. [Available from NTIS, Superfund Docket]
The Guidance Manual has been developed to assist the user in providing appropriate input to take the IEUBK Model for Lead. The manual emphasizes the use of the IEUBK Model for estimating risks from childhood lead exposure to soil and household dust that might be encountered at CERCLA/RCRA sites, although other applications of the Model are possible. The manual provides background information on environmental exposure parameters and recommends some useful approaches that allow flexibility for site-specific risk assessments, where possible.
 - c. Technical Support Document - Parameters and Equations Used in Integrated Exposure Uptake Biokinetic Model for Lead in Children (Version 0.99D). 1994. 113 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-94/040, OSWER 9285.7-22, PB94-963505. [Available from NTIS, Superfund Docket]
This document describes in detail the basis for the parameters and equations that are used in the IEUBK Model. It is a supplement to the Guidance Manual. Although this document details the selection of parameters and equations used in the IEUBK Model, it is not a line-by-line documentation of the source code. Equations and parameters have been simplified for clarity.
 - d. Validation Strategy for the Integrated Exposure Uptake Biokinetic Model for Lead in Children. 1994. 29 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/R-94/039, OSWER 9285.7-21, PB94-963504. [Available from NTIS, Superfund Docket]

This document describes the considerations and methods for characterizing the confidence to place in output from the IEUBK Model for Lead in Children. This document specifies many aspects in model validation, several of which have already been conducted, including comparison with other models, documentation of the Model's scientific basis, code verification, and preliminary empirical comparisons. The documents is primarily concerned with empirical comparisons of model predictions with field study data, and should be refined and expanded as new approaches are developed and additional data become available.

96. Annual Health Effects Assessment Summary Tables (HEAST) FY 1997. 1997. 336 pp. (EPA) U.S. Environmental Protection Agency. EPA 540/R-94/036. [Available from Superfund Docket]
HEAST users include individuals from the EPA, other Federal agencies, States, and contractors who are responsible for the identification, characterization, and remediation of sites contaminated with hazardous materials. In this document, slope factors are calculated by EPA to assist HEAST users with risk-related evaluations and decision-making at various stages of the remediation process.
97. Bioremediation in the Field Search System (BFSS) User Documentation. 1995. 70 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Office of Research and Development. EPA 540/R-95/508a. Washington DC. [The database (EPA 540/R-95/508b) can be ordered by title from NCEPI] clu-in.com/pubalpha.htm#B
BFSS is a PC-based software application providing access to a database of information on about 400 sites where bioremediation is being or has been tested or used. Each entry specifies site location, media and contaminants treated, and information on the operation, status, and costs of the bioremediation technology or technologies used. Menus of criteria are provided to allow users to tailor database searches to their individual needs.
98. Vendor Information System for Innovative Treatment Technologies (VISITT 5.0) User's Manual. 1996. 31 pp. (EPA) U.S. Environmental Protection Agency, Technology Innovation Office. EPA 542/N-96/008. Washington DC. Bulletin. [Available from NCEPI] www.prcemi.com/visitt
VISITT Version 5.0 is a user-friendly database providing data on almost 350 innovative treatment technologies provided by more than 200 vendors. Technologies in VISITT address the treatment of soil, sludge, solids, and natural sediments, both aboveground and in place (in situ), DNAPLs, and LNAPLs. Also include are methods of treating ground water in situ and of treating the off-gas generated by innovative treatment systems. The user's manual also gives detailed instructions on how to obtain the database and register as a VISITT user.

B. Geographic Information Systems (GIS)

NOTE: Other GIS documents and information can be found under "XIII. Internet Web Sites, B. Geographic Information Systems."

99. LandView™ III. 1998. (EPA) U.S. Environmental Protection Agency, Chemical Emergency Preparedness Office. Washington, DC. CD-ROM. [Available from the Bureau of the Census]
www.census.gov/geo/www/tiger
LandView™ III is a desktop mapping system that includes database extracts from the Environmental Protection Agency, the Bureau of the Census, the U.S. Geological Survey, the Nuclear Regulatory Commission, the Department of Transportation, and the Federal Emergency Management Agency. These databases are presented in a geographic context on maps that show jurisdictional boundaries, detailed networks of roads, rivers, and railroads, census block group and tract polygons, schools, hospitals, churches, cemeteries, airports, dams, and other landmark features.

XIII. Internet Web Sites**A. General**

100. Department Of Energy Home Page
www.doe.gov
The DOE home page provides both an electronic exchange initiative, in which users can exchange scientific and technical documents, and a resources database. The home page can connect the user to applicable remedial selection sites such as the following sites:
- A. Formerly Utilized Sites Remedial Action Program (FUSRAP) Site
www.fusrap.doe.gov/techpap/index.html
FUSRAP is a leader in the application of innovative technologies and the site provides on-line access to the latest technical papers.
 - B. Clearinghouse for Training, Education, and Development
wastenot.inel.gov/cted/
The DOE Learning System maintains this site that provides valuable information on the latest publications, guidance, and learning resources in remedy selection at Federal facilities sites.
101. Defense Technical Information Center Home Page
www.dtic.mil
The Department of Defense's Environmental Cleanup Office site can be accessed through the DTIC home page. It also provides a database to search for defense resources on cleanup at Federal facilities:

- A. Defense Environmental Restoration/Small Business Link
www.dtic.mil/envirodod/
Legislation, press releases, publication announcements, and other reference documents and publications are highlighted at this site that emphasizes the work of DoD's Environmental Restoration Program (DERP).
 - B. DefenseLINK
www.defenselink.mil
This site provides on-line access to DoD's most popular information resources, including cleanup directives and instructions and technology reports.
 - C. Department of Defense Environmental Resources
www.dtic.mil/envirodod/dodenvir.html
This web site provides resources for users to locate other sites concerning environmental activities of the Department of Defense. It lists information sources for the Army, Navy, Air Force, and numerous subject specific sites by the Department of Defense itself. Examples include cleanup, environmental quality, coastal America, and environmental technologies.
102. Environmental Protection Agency Home Page
www.epa.gov
The EPA home page provides information and on-line copies of EPA resources such as libraries, hotlines, information locators, publications, environmental test methods and guidance. It also highlights recent rules, regulations, and legislation coming through the pipeline and links to the following two key pages:
- A. EPA Publications
www.epa.gov/nceiphom/
This page is produced by the National Center for Environmental Publications and Information (NCEPI). The user can view and download publications, search the national publications catalog, and order EPA publications on-line.
 - B. Superfund Home Page
www.epa.gov/superfund
This page specifically showcases work being done in the Superfund office of EPA and includes on-line copies of many types of remedial documents such as fact sheets and guidance. Information on "hot" topics is also provided to keep users abreast of the latest developments in legislation, regulations, cleanup progress, and technologies.

103. Federal Facilities Restoration and Reuse Office (FFRRO) Home Page
www.epa.gov/swerffrr/
This home page contains links to a number of helpful resources. Among these resources are Initiatives and Guidance, BRAC, Laws and Regulations, Partnerships, and Innovative Technology. To overcome the difficulties posed by contamination at Federal facilities, FFRRO works with DoD, DOE, and other Federal entities to help them develop creative, cost-effective solutions to their environmental problems. FFRRO's overall mission is to facilitate faster, more effective, and less costly cleanup and reuse of Federal facilities. By focusing on teamwork, innovation, and public involvement, FFRRO and its Regional counterparts improve environmental cleanup, while protecting and strengthening the conditions of human health, the environment, and local economies.
104. Federal Technology Transfer Offices On The Internet
www.nalusda.gov/ttic/guide.htm
This home page provides links with major agencies' technology transfer sites (e.g., Environmental Protection Agency, Department of Defense, Department of Energy) in which users can exchange information on remedy selection and access other resources provided by their peers.
105. Hazardous Waste Clean-Up Information (CLU-IN) Home Page
clu-in.com
This EPA web site provides information about innovative treatment technologies to the hazardous waste remediation community. It describes programs, organizations, publications, and other tools for Federal and State personnel, consulting engineers, technology developers and vendors, remediation contractors, researchers, community groups, and individual citizens. Topics include remediation technologies, site characterization, partnerships and consortia, "what's hot" and "what's new," regulatory information, supply and demand for technologies, other Internet and on-line resources, and publications and software resources.
106. Office of Underground Storage Tanks Home Page
www.epa.gov/OUST
The Office of Underground Storage Tanks (OUST) was created in the summer of 1985 to carry out the Congressional mandate to develop and implement a new regulatory program for UST systems. OUST provides technical and administrative support to EPA's ten Regional offices as well as 56 State and territorial regulatory programs. OUST is organized into two divisions: the Policy and Standards Division and the Implementation Division. The OUST home page contains information on topic areas such as program priorities, new program developments, the mission statement, regional offices, and State/local programs.

107. RCRA State Authorization File Libraries: Policy and Guidance Documents
www.epa.gov/epaoswer/hazwaste/state/index.htm
This web site contains links to a number of documents (e.g., guidance, memos, checklists, etc.) that set precedence for most RCRA State Authorizations. State authorization is a rule-making process through which EPA delegates the primary responsibility of implementing the RCRA hazardous waste program to individual States in lieu of EPA. This process ensures national consistency and minimum standards while providing flexibility to States in implementing rules. State RCRA programs must always be at least as stringent as the Federal requirements, but States can adopt more stringent requirements as well. EPA makes draft checklists available before its review is completed because EPA believes they are generally reliable and useful in the State authorization process, and wants to provide the information contained in the checklists as quickly as possible.
108. Strategic Environmental Research and Development Program
www.hgl.com/SERDP/
The Strategic Environmental Research and Development Program is the Department of Defense's (DoD) corporate environmental R&D program, planned and executed in full partnership with the Department of Energy (DOE) and the Environmental Protection Agency (EPA), with participation by numerous other Federal and non-Federal organizations. Within its broad areas of interest, the Program focuses on cleanup, compliance, conservation, and pollution prevention technologies.
109. Technology Innovation Home Page
www.epa.gov/epaoswer/tio/index.htm
The Technology Innovation Office (TIO) acts as an advocate for new technologies to increase the application of resourceful treatment technologies to contaminated waste sites, ground water, and soils. The home page provides downloadable files on various hazardous waste remediation technologies and other resources, as well as a link to the CLU-IN home page described above.
110. U.S. Army Corps of Engineers Innovative Technology Program
www.mrd.usace.army.mil/mrded-h/itech.html
This web site links you to numerous facets of the U.S. Army Corps of Engineers Innovative Technology Program. The purpose of this program is to update, improve, and enhance the Corps environmental investigation and restoration methods. The program is attempting to combine the efforts of a handful of organizations. The hope is, that through collaborative efforts, feasible solutions will be developed most efficiently. Links from this web site include innovative technology advocates, success stories, workshops and technology information, and references for other resources.

B. Geographic Information Systems (GIS)

NOTE: Other GIS documents and information can be found under "XII. Databases/User's Manuals, B. Geographic Information Systems."

111. The Geographic Information Systems FAQ
www.census.gov/geo/www/faq-index.html
This is the index of frequently asked questions (FAQ) and answers about Geographic Information Systems (GIS). The FAQ is a resource of the comp.infosystems.gis news group and the GIS-L mailing list, which are no longer mirrors of each other.
112. Geographic Information Systems Resources & Materials
earth.fhda.edu/gis.html
Geographic information systems (GIS) are used to map and analyze geographically referenced information. A GIS is composed of computer hardware, software, and geographic data. GIS technology integrates common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps. This home page provides links to a variety of sources of information about GI and GIS software, including news groups, frequently asked questions, and private and government web sites that provide GIS services and software.
113. Geographic Information Systems Tools
www.epa.gov/epahome/datatool.htm#gis
This home page provides links to five GIS tools: (1) Maps on Demand (MOD); (2) Envirofacts Data Warehouse; (3) EPA Spatial Data Library System (ESDLS); (4) Geospatial Data Clearinghouse; and (5) National Geographic Information Systems (GIS) Program. These tools include information such as maps, methods for identifying the location of natural or man-made features on the earth, contact information, and other GIS-related material.
114. Yahoo: Top: Science: Geography: Geographic Information Systems (GIS) Web Site
www.yahoo.com/science/geography/geographic_information_systems_gis/
This site provides a search engine that allows you to choose to specifically search GIS information. You can further target other areas as well (such as Institutes, Organizations, Indices, and Conferences).

XIV. Other Related Compendiums and Resources

115. Compendium of CERCLA ARARs Fact Sheets and Directives. 1991. Collection of 37 documents. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response; U.S. Department of Energy Assistant Secretary for Environment, Safety and Health, Office of Environmental Guidance. OSWER 9347.3-15. [Available from Superfund Docket]
CERCLA requires attainment of Federal and State Applicable and Relevant and Appropriate Requirements (ARARs). This document describes the process of attaining ARARs and provides a complete and current source of "Quick Reference Facts Sheets" and directives on ARARs. These fact sheets provide overviews of ARARs for CERCLA cleanup actions.

116. Catalog of Superfund Program Information Products. 1994. 313 pp. (EPA) U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA 540/8-91/014. Washington, DC. [Available from NTIS]
All publicly available Superfund documents from the Office of Emergency and Remedial Response (OERR) can be obtained through NTIS. This catalog contains over 1,500 documents consisting of information on administrative and management issues, program implementation, technology policy and administration, and technology program implementation. It is categorized by subject, and provides a bibliography and abstract for each documents.
117. Fitting the Pieces Together: The Role of EPA Offices in Federal Facilities Cleanup and Reuse. 1997. 19 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 505/F9-7/001. Washington, DC. [Available from NCEPI]
Many EPA offices provide information about or assistance with environmental issues related to Federal facilities. More than 10 offices at EPA, each having a distinct role and mission, provide a wide range of products and services related to the cleanup and reuse of Federal facilities. These offices are located at EPA Headquarters and in the EPA regions. Some of these offices are dedicated solely to issues affecting Federal facilities, while others are involved in activities that affect Federal facilities, as well as other types of sites. This document provides a summary and overview of the above mentioned offices, including a description of their mission and duties. Through the use of tables and graphics, one is shown how these entities are related and how they function within the EPA.
118. Catalog of Materials on Federal Facilities Restoration and Reuse. 1997. 39 pp. (EPA) U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 505/B-97/001. Washington, DC. [Available from NCEPI]
www.epa.gov/swerffrr/guide.htm
FFRRO developed this document in response to requests for information about resources currently available on cleanup and rescue of Federal facilities. Designed for quick reference, the catalog contains summary information about each document, cost and ordering information, the Internet location, and other useful information. The catalog is organized into five subject categories: (1) base realignment and closure; (2) property transfer; (3) reuse, liability, and remedy selection; (4) information sources; and (5) stakeholder involvement and public outreach.

HOW TO OBTAIN DOCUMENTS LISTED IN THIS GUIDE

Documents listed in this *Compendium* are available through a variety of sources. Contact the appropriate source based on the following information. References to these sources are included after each bibliography.

As listed below, EPA/510, EPA/540, EPA/600, EPA/625, and EPA/903 documents are available through the Center for Environmental Research Information (CERI). EPA/540 documents can also be obtained through the National Center for Environmental Publications and Information (NCEPI), along with EPA/542 documents. These document repositories provide in-stock documents free of charge, but document supplies may be limited. If documents are no longer available from these sources, they can be obtained through the National Technical Information Service (NTIS) and the Government Printing Office (GPO) for a fee; therefore, prior to purchasing a document, you may wish to review a copy on the Internet, at a technical or university library, or at a public library that houses government documents. OSWER prefixed documents (e.g., OSWER-92) can also be obtained from the Superfund Docket.

Document Type	Document Source
Publications with the following numbers: EPA/510 (limited collection) EPA/540 (limited collection) EPA/600 EPA/625 EPA/903 (limited collection)	Center for Environmental Research Information (CERI) U.S. Environmental Protection Agency 26 West Martin Luther King Drive Cincinnati, OH 45268 (513) 569-7562 Fax: (513) 569-7566 8:30 a.m. - 5:00 p.m., Eastern Time

CERI is the focal point for the exchange of scientific and technical environmental information produced by EPA. It supports the activities of the Office of Research and Development.

Document Type	Document Source
FFRRO Documents	U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Federal Facilities Restoration and Reuse Office 401 M Street, S.W. Washington D.C. (202) 260-9924 www.epa.gov/swerffrr/

The FFRRO Home Page provides you with links to initiatives and guidance documents concerning contamination cleanup at Federal facilities.

Document Type	Document Source
Publications with the following numbers: EPA/540 EPA/542	National Center for Environmental Publications and Information (NCEPI) P.O. Box 42419 Cincinnati, OH 45242 1 (800) 490-9198 Fax: (513) 489-8695 7:00 a.m. - 5:30 p.m, Eastern Time www.epa.gov/ncepihom/

NCEPI serves as the centralized source for EPA publications and electronic media products. NCEPI also produces the Agency's publications catalog.

Document Type	Document Source
Publications with the following prefixes: AD DE PB	National Technical Information Service (NTIS) U.S. Department of Commerce 5285 Port Royal Road Springfield, VA 22161 To Order: 1(800) 553-6847 or (703) 605-6000 General Info: (703) 605-6050 TDD: (703) 605-6043 Fax: (703) 321-8547 Rush Service: 1 (800)-553-6847 8:30 a.m. - 5:00 p.m, Eastern Time www.ntis.gov/ E-Mail: orders@ntis.fedworld.gov

NTIS is the central source for the public sales of U.S. and foreign government-sponsored research focusing on technical and business information from more than 200 government agencies. Non-Federal Government employees must order documents with NTIS numbers from NTIS.

Document Type	Document Source
Publications with the following numbers: OSWER-92 OSWER-93	Superfund Docket 401 M Street, SW, 5501 Room M-2615 Washington, D.C. 20460 (703) 603-8917 Fax: (703) 603-9240 www.epa.gov/earth100/records/a00108.html E-Mail: superfund.docket@epamail.epa.gov

Document Type	Document Source
DOE documents, such as 1, 10, 34, and 40 are available, free of charge, from:	Center for Environmental Management Information P.O. Box 23769 Washington, D.C. 20026-3769 1 (800) 736-3282, (202) 863-5084 Fax: (202) 554-3267 10:00 a.m. - 5:00 p.m., Eastern Time www.em.doe.gov/stake/order2.html

Document Type	Document Source
DoD documents are available from:	Defense Technical Information Center (DTIC) 8725 John Jay Kingman Road Suite 0940 Fort Belvoir, VA 22060-6218 1 (800) 225-3842, (703) 767-8274 Fax: (703) 767-9070 www.dtic.mil/dtic/ordering.html E-Mail: rp-orders@DTIC.mil

Document Type	Document Source
Publications of the following type: Federal Register	U.S. Government Printing Office (GPO) Superintendent of Documents P.O. Box 371954 Pittsburgh, PA 15250-7954 (202) 512-1800 Fax: (202) 512-2250 8:00 a.m. - 4:00 p.m., Eastern Time www.gpo.gov

The GPO Home Page gives users access to an index to all of its publications, including the Federal Register. Some recent documents can be downloaded. All documents can be ordered through the home page, by calling the above phone number, or by mailing or faxing a request. Many of the documents are available on the Internet before they are available in print.

Problems Finding a Document?

If you have any difficulty finding a document or wish to obtain EPA/510 documents, call:

RCRA/Superfund/OUST Hotline 1 (800) 424-9346 or (703) 412-9810
 TDD: 800-553-7672 or (703) 412-3323
 FAX: 703-412-3323
www.epa.gov/epaoswer/hotline/index.htm

This hotline operates Monday - Friday, 9:00 a.m. - 6:00 p.m., Eastern Time. Hotline staff can help EPA staff or members of the public locate documents and assist callers with placing document orders.

Documents Obtained from Other Sources

The following documents may also be obtained from the sources noted below:

9. *Understanding Risk: Informing Decisions in a Democratic Society*
 National Academy Press
 2101 Constitution Avenue, NW
 Washington, D.C. 20055
 1 (800) 624-6242 or (202) 334-3313 in the Washington, D.C. area
 Fax: (202) 334-2451
 8:30 a.m. - 5:00 p.m., Eastern Time

33. *Presumptive Remedies and NCP Compliance*
 Office of General Counsel
 Assistant General Counsel for Environmental, Civil Rights and General Law
 Room 10102 (C-10)
 U.S. Department of Transportation
 400 7th Street, SW
 Washington, DC 20590

51. *The Road to ROD: Tips for Remedial Project Managers*
 Region 3 Public Environmental Education Center (PEEC)
 841 Chestnut Street
 Philadelphia, PA 19107
 (215) 597-7332

81. *Navy/Marine Corps Installation Restoration Manual*
 Bill Judkins, Program Manager for Navy Installation Restoration Program
 Naval Facilities Engineering Command
 200 Stovall Street
 Alexandria, Virginia 22332
 (703) 325-2128
 Fax: (703) 325-0183

84. *Presumptive Remedy Engineering Evaluation Cost Analysis (PREECA)*
U.S. Air Force
Environmental Restoration Flight
129 Andrews Street, Suite 102
Langley AFB, Virginia 23655-5339
(804) 764-4613
Fax: (804) 764-5339
85. *PR'98 Environmental Compliance Cookbook (Draft)*
Mike Green, Program Manager for Navy Installation Restoration Program
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, Virginia 22332
(703) 325-8538
Fax: (703) 325-0183
99. *LandView™ III*
U.S. Department of Commerce
Bureau of the Census
P.O. Box 277943
Atlanta, GA 303-84-7943
Customer Service: (301) 457-4100
Fax: (888) 249-7295 or (301) 457-3842

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