



Hazard Evaluation Handbook

A Guide to Removal Actions Fourth Edition

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for the
U.S. Environmental Protection Agency
Region III Superfund Removal Branch
Under Contract #68-S5-3002



October 1997

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Introduction

This book is the fourth edition of a guidebook for U.S. EPA project managers, inspectors, and others to help them view a project site from a multimedia perspective and to recognize potential emergency or removal conditions that may not be obvious. It is essential that the project manager or inspector question everything at a project site in terms of the imminent threat posed to human health and the environment.

According to the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300.420 (b) and (c), among the goals of a remedial preliminary assessment and of a site investigation are to determine if there is any potential need for removal action, and, if the assessment or investigation indicates that a removal action is warranted, to initiate a removal site evaluation pursuant to 40 CFR Part 300.410. Removal actions are warranted in unstable or potentially unstable situations that pose immediate threats to public health and the environment. Examples of such threats are weathered, leaking drums; potentially explosive substances; damaged buildings or other structures with a high potential for causing hazardous substances to be released from containment; and so forth. The purpose of this book is to help Remedial Project Managers understand the processes involved in a removal site evaluation and recognize the potential sources of immediate hazards at various types of sites. Such recognition is important not only to fulfill the mandates of the NCP,

but also to maintain maximum site safety and security during remedial actions.

Many sites, such as those being evaluated for the National Priorities List (NPL), are examined first by the Site Assessment Program, not by the Removal Program, so it is important that these sites be examined in light of their potential for causing imminent threats. Other sites undergo emergency removal actions by the Removal Branch first and then are transferred to other programs for additional action. During the subsequent transition period, conditions that were stable at the end of the removal response may have deteriorated so that an imminent threat is posed to the public or to the environment. Remedial sites are of concern because the remedial process can take years, during which weathering and wearing of storage and containment facilities can occur. The NPL Site Certification process requires the periodic evaluation of remedial sites. These evaluations should include an assessment of the need for a removal action.

A companion to this guide is the *Disposal Handbook: A Guide to Evaluating Hazardous Waste at a Superfund Site for Disposal*, which is designed for use once a removal action has been determined to be necessary. The *Disposal Handbook* takes a quantitative approach to evaluating known threats at a hazardous waste site, whereas the *Hazard Evaluation Handbook* takes a qualitative approach to determining whether a threat exists and, if so, the nature of the threat.

This book is meant only as a guide to the possible sources of harm presented by various types of sites; it is not an exhaustive study. Instead, the purpose of the book is to encourage project managers and others to examine a site from several different perspectives in evaluating potential hazards.

Acknowledgments

This book was prepared by the Region III Site Assessment Technical Assistance (SATA) Team under the coordination of the Superfund Removal Branch, U.S. EPA Region III. Many EPA personnel and SATA members made direct and indirect contributions to this project. The project could not have been successfully completed without the assistance of the EPA and SATA personnel involved.

Safety

Certain safety precautions should be considered before entering any area that is suspected to be contaminated with hazardous substances. EPA's Standard Operating Safety Guides, November 1984, as well as the specific site health and safety plan should be followed to prevent short-term exposure and injury and the long-term effects of multiple short-term exposures.

- Review background information about the facility prior to making a site visit. A background search may provide such useful information as the names of any process chemicals used at the facility, contact names, and site-specific hazards and may assist field personnel conducting the assessment.
- Draft a site health and safety plan to address all chemical, physical, biological, and radioactive hazards associated with the site. Modifications to the safety plan can be made as additional information is collected.
- Conduct an initial survey of the site from a safe distance away to determine if there are any visible hazards that should be addressed or avoided when entering the site. If the contaminants are known, it is possible to gather information from the numerous reference sources available, prior to going on the site.

- When making an entry into a site where the materials are unknown, high levels of protection (Level B or higher) are recommended until sufficient data has been collected to determine that lower levels of protection are sufficient. During the assessment, the entry team will use direct air monitoring equipment to check for radiation, combustible gases, and volatile organic and inorganic vapors. Multimedia (air, water, and soil) samples should also be collected to determine actual concentrations of the contaminants on site.
- Based on the initial survey, select the proper type of personal protective equipment to safely perform tasks required for further site assessment. Personal protection may include a self-contained breathing apparatus (SCBA) or air-purifying respirator (APR), chemical protective coveralls, chemical-resistant gloves and boots, a hard hat, and safety goggles. The purpose of the protective equipment is to minimize the risk of exposure to hazardous substances through inhalation, ingestion, or skin contact.
- Personnel working on site must have completed a minimum level of OSHA-required training per 29 CFR 1910.120.
- Ensure that all persons entering the site read and understand the site health and safety plan in order to limit the number of injuries. As new threats are encountered and the site work plan is revised, the safety plan must be amended to reflect these changes.
- Determine if a confined space permit is required.

Sources of Information

Questions about the hazards posed by a site and whether a removal response is appropriate can be answered by the EPA Region III Superfund Removal Branch. Call the following people for information:

Regional Response Center - (215) 566-3255

An On-Scene Coordinator from the Superfund Removal Branch is on duty outside of normal working hours and can be reached through the Regional Response Center to answer questions.

Charles Kleeman, Section Chief - (215) 566-3257

Removal Response Section (3HW31)
Superfund Removal Branch

Karen Melvin, Section Chief - (215) 566-3275

Removal Enforcement and Oil Section (3HW32)
Superfund Removal Branch

David Wright, Section Chief - (215) 566-3293

Site Assessment and CEPP Section (3HW33)
Superfund Removal Branch

Questions about the degree of toxicity posed by a substance and its possible effects should be referred to the EPA Region III Superfund Technical Support Section (3HW41). Call the following people for information:

Bill Belanger, Regional Radiation Representative (3AT32) - (215) 566-2082

Eric Johnson, Section Chief (3HW41) - (215) 566-3313

Toxicological information may also be obtained from:

Samuel Rotenberg, Toxicologist - (215) 566-3396
RCRA Integrated Management and Support Section (3HW70)

Additional information can be obtained from:

American Association of Railroads - (202) 639-2100

The association provides assistance at sites involving rail shipments of hazardous materials.

Centers for Disease Control - (404) 633-5313 (24 hours)

The CDC provides assistance in emergencies involving bacterial agents or infectious diseases.

Chemical Emergency Preparedness Program - (800) 535-0202

This hotline provides information on reporting of hazardous substances for community planning purposes.

CHEMTREC - (800) 424-9300 (24 hours)

CHEMTREC provides information concerning materials involved in hazardous materials incidents. CHEMTREC can also contact manufacturers, shippers, or other parties who may be able to provide additional assistance. A supplement to CHEMTREC is the HIT (Hazard Information Transmission) program, which provides a hard copy of hazard data. Non-emergency service can be obtained from CHEMTREC by calling (800) 262-8200, between 8 a.m. and 9 p.m.

EST. CHEMTREC is operated by the Chemical Manufacturers Association.

**National Animal Poison Control Center - (217) 333-3611
(24 hours)**

The center is operated by the University of Illinois and provides assistance at sites involving suspected animal poisonings or chemical contamination.

**National Pesticide Telecommunications Network -
(800) 858-7378**

The network provides information about spill handling, disposal clean-up, and health effects of pesticides.

Nuclear Regulatory Commission, King of Prussia, PA - (610) 337-5000

HQ National Operation Center (301) 816-5100

These numbers provide information about radiation concerns.

Safe Drinking Water Hotline - (800) 426-4791

This hotline provides information about the public water supply program, policy, and technical and regulatory items.

**Solid Waste and Hazardous Waste (RCRA) and Superfund -
(800) 424-9346**

This hotline provides information about the Resource Conservation and Recovery Act and Superfund. It is operated by EPA.

Texas Tech University Pesticide Hotline - (800) 858-7378

The hotline provides emergency information in pesticide-related incidents.

**TSCA and Asbestos Technical Information and Referral -
(202) 554-1404**

This hotline provides information on the Toxic Substances Control Act and on asbestos.

US Department of Transportation Hotline - (800) 467-4922

The hotline provides information and assistance concerning the hazardous materials regulations found in the Code of Federal Regulations Title 49.

Computer Resources**TOXNET**

TOXNET, managed by the National Library of Medicine, provides access to data bases on toxicology and related issues. Five integrated data base modules are accessible: the Hazardous Substances Data Bank (HSDB), Registry of Toxic Effects of Chemical Substances (RTECS), Chemical Carcinogenesis Research Information System (CCRIS), Directory of Biotechnology Information Resources (DBIR), and Environmental Teratology Information Center Backfile (ETICBACK). Call (301) 496-6531 for account information.

CHEMICAL INFORMATION SYSTEMS INC

CIS provides access to about nine different data bases. Among the data bases are the Oil and Hazardous Material/Technical Assistance Data System (OHMTADS), the Chemical Hazard Response Information System (CHRIS), and the MERCK index. CIS also provides access to the SPHERE family of components sponsored by the U.S. EPA Office of Toxic Substances, including DERMAL, ENVIROFATE, and ISHOW. Call (800) CIS-USER for account information.

CAMEO - RIDS

The Computer-Aided Management of Emergency Operations (CAMEO) program provides response information and recommendations for over 4000 commonly transported chemicals, an air dispersion model, and components for emergency response planning. Call (800) 99CAMEO for account information.

Internet Resources

For information on numerous topics including pollution control and remediation technologies relating to air, water, and hazardous waste start at EPA's web site at the following address: <http://www.epa.gov/>