

- Special warnings
- Chemical suit listings
- Emergency first aid treatment
- Hazard rating
- Fire fighting
- Evacuation distances
- Health hazard information
- Threshold limit values
- Chemical Abstract Service registry number

Preceding the chemical data section is a one-page introduction (that needs a thorough editing for grammar) essentially noting companion (competing) chemical information sources. The 11-page preface following contains:

- Explanation of hazard rating
- General response procedures: containment, adsorption, dilution, neutralization, vapor control
- Structural fire fighting advice
- Levels of personal protection

Following this too brief preface (it could well be supplemented or just dropped leaving the book as a chemical information source), is a table of contents listing:

- Chemical name
- Company
- Telephone number

I assume this listing identifies one of the manufactures (or the manufacturer) who supplied the MSDS containing the published data — but the authors do not explain the context or rationale for their list. Following this section is a listing of chemicals by synonym, trade name or chemical name.

My overall assessment is the book will be a very valuable quick information source for first responder on chemical data and impacts of chemical releases. It is one book I will recommend to our local hazardous response team to have on board their response vehicle. The preface section needs work though.

GARY F. BENNETT

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*DNAPL Site Investigation*, by Robert M. Cohen and James W. Mercer, Lewis Publishers, CRC Press, Inc., 2000 Corporate Blvd., Boca Raton, FL 33431, USA, ISBN 0-87371-977-8, 1993, 338 pp., including appendices

This book addresses one of the more illusive technical challenges of the day, determination of the presence of dense non-aqueous phase liquids (DNAPLs) in the environment. When DNAPLs are present, they have a significant impact on the effectiveness and the period of performance for groundwater remediation. Therefore, design and performance expectations will be enhanced by our ability to determine

DNAPL presence. This book reports on work funded by the US Environmental Protection Agency to improve our ability to locate or infer the presence of DNAPLs at contaminated sites.

The book begins with an excellent executive summary which addresses each key finding and quickly provides the reader with a capsule view of the state-of-the-art. Chapter 2 provides the objectives for the work being reported on and frames key questions that will be answered in subsequent chapters. Chapter 3 provides information on sources and uses of common DNAPL chemicals as well as their physical/chemical properties.

Chapter 4 contains a discussion of fluid and media properties that affect the transport of DNAPLs in the environment. This is an excellent reference source that describes phenomena and provides empirical observations to help the reader understand how DNAPLs will distribute themselves in geologic media and, hence, where to look for them. Chapter 5 integrates the information on properties into conceptual models of DNAPL transport. Algorithms and models are provided to predict transport rates and disposition of DNAPLs in the environment. This work provides an excellent baseline for the development of site investigation objectives and strategies in Chapter 6.

Chapter 7 describes the site characterization process and an approach to inferring that DNAPLs may be present. This is followed by descriptions of noninvasive and invasive investigation techniques in Chapter 8 and 9, respectively. Technique applications, limitations, availability and costs are provided. A similar discussion of analytical methods is provided in Chapter 10. Chapter 11 provides a series of case studies which help integrate the information from the previous chapters and provide real life examples of how investigations proceed and typical results from those investigations. This chapter is of particular value since for many sites, DNAPL presence will be inferred, but never confirmed.

A list of research needs is provided as well as extensive references. Appended materials include physical/chemical property data for common DNAPL chemicals, a directory of symbols, parameters, and dimensions, and a glossary.

I recommend this book for anyone who is faced with the need to investigate a site where DNAPL chemicals may be present. While there are no significant breakthroughs that greatly enhance our ability to confirm the presence of DNAPLs, the book provides a very sound phenomenological basis from which the investigators can develop an optimum strategy utilizing available technologies.

GAYNOR W. DAWSON

*Reproductive Toxicology*, edited by Mervyn Richardson, VCH, Weinheim, Germany, ISBN 3-527-28561-X, 1993, 306 pp., DM 195

This volume presents some of the papers given at a symposium sponsored by the Toxicology Group of the Royal Society of Chemistry in 1992, with the addition of other contributions from Central and Eastern Europe.

The first chapter outlines the approach used by the International Agency for Research on Cancer in evaluating toxicants. Based on this system, epidemiological