

Survey of Chemical Spills Countermeasures, Merv Fingas, Jennifer Charles, P.G. Langille and L.B. Solsberg (Eds.), Lewis Publishers, Boca Raton, FL, 1998, \$65.00, 341 pp., ISBN: 0-56670-313-1

This book is a survey of commercially available equipment, processes, and agents (collectively termed countermeasures) for controlling chemical spills. It includes only those products that have been evaluated, have proven performance, or were judged to have potential merit for chemical spill response. It is an updated and extensively revised version of the original *Survey of Chemical Spill Countermeasures*, which was published in 1986. This revised and updated version contains data made available to Environment Canada's Emergencies Science Division up to April, 1996.

The products are categorized in various sections according to the primary response operation for which they are used. The following are the categories and the subsections within them.

Containment	Leak mitigation
	Containment on land
	Containment on water
	Containment in/under water
Removal	Removal from land
	Removal from surface water
	Removal from subsurface soils
	Sorbents
	Vacuum systems
	Dredging
Temporary storage	Flexible containers
	Rigid wall containers
	Liners
Transfer	Transfer of liquids
	Transfer of gases
	Transfer hoses
Treatment/disposal	Spill treating agents
	Liquid–solid separation systems
	Fundamental water treatment processes
	Aqueous treatment systems
	Vapour treatment systems
	Solids treatment systems

Each product is discussed in 1–2 pp. Included are excellent diagrams of the equipment described. Given for each system are: (1) description, (2) operating principle, (3) status of development and usage, (4) technical specifications, (5) performance, (6) contact information, (7) other data, and (8) references.

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Practical Design Calculations for Groundwater and Soil Remediation, Jeff Kuo, Lewis Publishers, Boca Raton, FL, 1998, \$69.95, 263 pp., ISBN: 1-56670-238-0

This book was written as a practical manual to allow engineers (and other technical remediation practitioners) to perform the needed calculations for remedial design. It is based on the author's industrial (consulting) experience that includes design and installation of air strippers, activated carbon adsorbers, flare/catalytic incinerators, and biological systems for groundwater and soil remediation.

The book was written for practicing engineers to assist them in performing design calculations — and, in my estimation, it does this well. Kuo has written a book much different from the average text — minimization of theory; maximization of example calculations. This is not to say he does not present the theoretical background to the topic; he does, but in minimum space. First comes the discussion of the topic; next the theory; and finally example calculations/problems. The latter are clear, numerous, concise, and understandable.

The book has seven chapters as follows:

- Introduction
- Site Assessment and Remedial Investigation — In this chapter, Kuo discusses the calculations necessary to determine partitioning of contaminated mass in different phases.
- Groundwater Movement and Plume Migration — Aquifer test data interpreting and estimation of the age of groundwater plume are discussed.
- Mass Balance Concept and Reactor Design — Described are how to determine rate constant, removal efficiency, optimal arrangement of reactors, required residence time, and reactor size for specific applications [it is here the author's chemical engineering training is evident].
- Vadose Zone Soil Remediation — This chapter discusses design calculation for commonly used “in situ or above ground” soil remediation techniques such as soil vapor extraction, soil washing and bioremediation.
- Groundwater Remediation — Described are design calculation for capture zone and optimal well spacing as well as calculations for commonly used in situ and ex situ groundwater remediation techniques including bioremediation, air sparging, air stripping, advanced oxidation process, and activated carbon adsorption.
- VOC-Laden Air Treatment Remediation — This chapter discusses the treatment of off-gasses, contaminated with organics. Treatment processes presented are activated carbon, adsorption, direct incineration, catalytic incineration, IC engines, and biofiltration.

This book, in my estimation, is an excellent one. It does bridge the gap between theory and practice. Although it may not be adopted as *the* text for a university course, it would make an excellent second book for the practical aspects of a course, i.e. problem assignment.

The readers, however, will be practicing engineers, not students. They should find the book invaluable, as they strike out into new remediation areas.

My only criticism is that the book is too short. I would have liked a few more pages devoted to such topics as biofiltration and advanced oxidation techniques. Also, I would