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Book Reviews

Managing Contaminated Sites: Problem Diagnosis and Development of Site Restoration, by D. Kofi Asante-Duah, John Wiley & Sons, Chichester, UK, 1996, f40, 238 pp. ISBN: 0-471-96633-9

In reviewing a book, I normally lean heavily on the preface, using it as a guide to the book's contents and the author's reason for writing it and a forerunner of the book's purpose and coverage. Unfortunately, all of the above was lacking in Asante-Duah's preface. It provides a very poor overview of the text.

The book's cover does a slightly better job selling the book where it states:

"This book addresses the issues relevant to the investigation and management of contaminated sites, emphasising problem diagnosis/characterisation and the development of site restoration/corrective action programs. The book focuses on methodologies that will allow scientifically justifiable/defensible, technically feasible, and economically viable corrective action assessment and response decisions to be made."

The book's strength is the site assessment focus; its weakness is its discussion of site restoration techniques. The latter topic is so extensive, it's futile to attempt, even to overview, in a 19-page chapter, as the author did.

The book is divided into an Introduction plus two main sections (the first dealing with diagnosis; the second with restoration). Each section has several chapters, as shown below: Part II: Problem DiagnosisInvestigating Potentially Contaminated SitesContaminant Fate and Transport in the EnvironmentConceptualization of Contaminated SitesElements of a Site Characterization Activity Risk Assessment as a Diagnostic Tool Part III: Development of Site RestorationDevelopment of Risk-Based Site Restoration GoalsSite Restoration Techniques Corrective Measure Evaluation Tools Evaluation of Site Restoration Options Development of a Site Restoration Plan for a Contaminated Site Problem: An Illustrative Example Design of Corrective Action Response Programs

One unique (at least for the reviewer) aspect of the book was found in Chapter 9, Corrective Measure Evaluation Tools, in which the author discusses the use of mathematics (computer) models to:

Understand and predict contaminant fate and transport
Determine contaminant sources using back-tracking procedures
Screen remedial alternatives
Aid in conceptual design of optimal remediation systems
Allow analysis of remedial action alternatives
Enhance performance evaluation of remedial alternatives.

The author discusses a few of the many computer models available: AEIRS, AIR3D, AIRFLOW/SVE, AIRTOX, API DSS, GEMS, HELP, HSSM, IRIS, IRPTC, LEAD-SPREAD, MULTIMED, RAPS, RBCA, ReOpt, RISC, RISK * ASSISTANT, RISKPRO, SITES, SUTRA and WET.

Gary F. Bennett

PII S0304-3894(97)00084-8

Chemical Hazards, Mitigation and Preparedness in Areas of High Seismic Risk: A Methodology for Estimating the Risk of Post-Earthquake Hazardous Materials Release, by H.A. Seligson, R.T. Eguchi, K.J. Tierney and K. Richmond, National Center for Earthquake Engineering Research, Buffalo, NY, 1996, price unlisted, 144 pp. ISBN: none

One of the earthquake safety provisions that intrigued me was the use of shelf barriers to prevent chemical bottles from being shaken off the shelf and spilling. But earthquakes pose greater hazards, i.e., releases from large-scale storage of chemicals, both liquids and gases.

Although there has never been a major incident involving hazardous materials in a U.S. earthquake, smaller releases have occurred in events that were moderate in size. A recent example is an accident at a chlorine repackaging facility in the 1987 Whittier Narrows Earthquake, in which nearly one ton of chlorine gas was released. The research for this project combines seismic hazard analyses, findings from research on earthquake-related failures in industrial facilities, and data on airborne toxic releases to estimate the magnitude of the risk.

The study examined 22 sources within the city limits of Los Angeles, and from the impact of chlorine and ammonia releases as well.

"Based on the 22 sources identified for this study, the most serious releases would occur not in the largest postulated earthquake, but in the earthquake causing the strongest ground shaking at the hazardous materials sources. This earthquake, the Magnitude 7.0 Newport–Inglewood event, would cause ground shaking of at least intensity 8.0 at all but two of the studied sources. In contrast, the M 8.3 San Andreas event causes MMI 8.0 or more at only 4 sites."

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Environmental Modeling: Fate and Transport of Pollutants in Water, Air, and Soil, by J.L. Schnoor, Wiley Interscience, John Wiley & Sons, Inc., New York, NY, 1996, $69.95, 682 pp. ISBN: 0-471-12436-2

This book (according to the author) is an attempt to wed elementary concepts of pollutant fate and transport with chemical principles in order to assess environmental