



Book reviews

Air Sparging: A Project Manager's Guide

Keith Fields, James Gibbs, Wendy Condit, Andrea Leeson, Godage Wickramanayake, Battelle Press, Columbus, OH, 2002, 170 pp., US\$ 65.00, ISBN: 1-57477-130-2

This book is the latest in Battelle's output of excellent practical guides to contaminated site remediation. This book was developed "... to provide guidance to project managers on selection, design, installation, operation and shutdown of air sparging systems".

Initial efforts at site cleanup involved such inadequate measures as pump-and-treat systems. As time progressed, engineers found new approaches were needed. Air sparging is one of the new processes that has evolved and has been utilized to clean up halogenated and non-halogenated volatile organic compounds as well as some semivolatile compounds such as diesel fuel and jet fuel.

"Air sparging is an innovative in situ treatment technology that uses injected air to remove volatile or biodegradable contaminants from saturated soil. For volatile contaminants, such as solvents or gasoline, air is injected directly into the saturated soil to remove the contaminants through air stripping. The stripped compounds then can be biodegraded and/or removed via soil vapor extraction (SVE) in the vadose zone. For semivolatile contaminants, such as diesel and jet fuels, air stripping is not the removal mechanism. Rather, the primary removal mechanism is stimulated microbial activity caused by the introduction of dissolved oxygen (DO), which increases the biodegradation rate of the contaminant in the saturated zone."

In separate chapters (and several appendices), the text answers the following questions:

1. Where can I find more information on application of air sparging at other sites?
2. Will air sparging work at my site?
3. Is air sparging the best technology for my site?
4. How much will it cost?
5. What regulatory and permitting issues do I need to consider when using air sparging?
6. How are air sparging systems designed?
7. What testing is performed during predesign (pilot) studies?
8. How long will it take to achieve cleanup goals?

9. How do I know if the system is operating effectively and efficiently?
10. When can I stop operating the system?
11. The system is not operating/performing as intended. What's wrong?
12. What should I include in a Statement of Work for my contractor?

PII: S0304-3894(02)00290-X

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Handbook of Chemical and Environmental Engineering Calculations

Joseph P. Reynolds, John S. Jeris and Louis Theodore (Eds.), Wiley, New York, NY, 2002, 961 pp., US\$150.00, ISBN 0-47140228-1

The *Handbook of Chemical and Environmental Engineering Calculations* is a very different book from ones I normally review. Rather than being a standard textbook, it contains problems only, more than 600 in total, which are divided into eight chapters (which, in turn, are subdivided into 55 sections) as follows.

1. Chemical Engineering Fundamentals
2. Chemical Engineering Principles
3. Air Pollution Control Equipment
4. Solid Waste
5. Water Quality and Wastewater Treatment
6. Pollution Prevention
7. Health, Safety, and Accident Management
8. Other Topics

The goal of the authors was to produce a non-traditional book, one dealing with calculations only. The book is designed to be used as a self-teaching aid. One of the key features of this text is the presentation of problem statements and solutions in a stand-alone manner. Each presented problem contains a title, problem statement, data, and solution with the progression of problem difficulty increasing in the section.

The final section (entitled "Other Topics") contains much interesting material. Of special interest to me were the separate sections on "Ethics" and "ISO 14000".

The book is without references to the literature, but this omission is not a detriment to its utility. I commend the book to faculty use. As far as students are concerned, I am certain they will find the book useful as a supplement to their regular text.

PII: S0304-3894(02)00291-1

Gary F. Bennett

Remediation and Beneficial Reuse of Contaminated Sediments

Robert E. Hinchee, Augusto Porta, Marco Pellei (Eds.), Battelle Press, Columbus, OH, 2002, 473 pp., US\$ 75.00, ISBN 1-57477-129-9

This book is the third and final volume of papers from the First International Conference of Contaminated Sediments held in Venice, Italy, in October 2001.