Stabilization, Disinfection and Odor Control in Sewage Sludge Treatment—An Annotated Bibliography Covering the Period 1950–1983


This bibliography was produced by two individuals from Great Britain’s Water Research Center (WRC) in Stevenage using the computerized literature files of the WRC from 1974 through 1983 and a manual search of Water Pollution Abstracts from 1950 to 1973. As the title indicates, the bibliography is annotated and formatted into three sections including stabilization, disinfection, and odor control of sewage sludge. In each section, references are arranged alphabetically by author, and each author’s publications are arranged by date.

The section on sewage sludge stabilization is subdivided into each of the major stabilization methods used today including aerobic and anaerobic digestion, lime stabilization, and composting. This section covers these topics well and represents 226 pages of the text.

The section on odor control is only six pages in length and represents a very minor portion of the bibliography. Admittedly, literature sources dealing with odor control are not abundant; but, surely more articles could have been included.

The text is well presented with clear headings and type style. The abstracts themselves give excellent indications of the contents of the articles listed. The bibliography contains an author index and a complete index to the subject matter.

This bibliography should be a welcome addition to the library of those interested in the stabilization and disinfection of sewage sludge.

Groundwater-Leachate: Modeling/Monitoring/Sampling


The movement of water and dissolved materials within groundwater systems is a subject of widespread immediate interest, yet unfortunately is also a subject not well understood by most people. This concise, at times terse, book by three engineers active in hazardous waste/pollution control studies attempts to provide a broad introduction to quantitative description of groundwater systems for the reader already possessed of some understanding of the rudiments of physical processes within the environment. Although it serves such a purpose well in some regards, it falls short of a scientifically accurate presentation in others.

The book is divided into six chapters covering an introduction to groundwater contamination, groundwater models and their usage, monitoring programs, and sampling methods. Throughout most of the book, there are extensive supplemental references included which provide the reader with ready entrance into more in-depth treatment of the topics covered very generally by the authors. This is, in fact, one of the strengths of the book.

Water flow, solute movement, and chemical reaction processes operative in groundwater systems and the approaches taken to model them are outlined by the authors in the first half of the book. Several types of analytical and numerical models are developed. Although this material is generally well organized for the water and solute flow, it has been misleadingly shortened in two very important respects. First, there is little recognition given to the role that the unsaturated zone plays, through its spatially and temporally variable water and solute fluxes, in determining the boundary conditions at the interface of the unsaturated/saturated groundwater system. This currently researched issue is casting doubt upon many of the model formulations presented by the authors as management tools. Second, the reader is left with a scientifically naive impression of the many conflicting and complicated chemical processes that determine the distribution of a chemical between aqueous and sorbed phases. There are in fact several erroneous statements made with respect to such issues. This is unfortunate, for the authors present such information, along with the currently debated, yet classically and widely used groundwater flow equations, as if they were established fact subject only to relatively minor site-specific environmental constraints.

Apparently recognizing these constraints, yet somehow ignoring them as they seek to use models in an engineering problem-solving manner, the authors proceed to discuss groundwater model usage for a variety of purposes. They present a rather comprehensive procedure one should follow in selecting a model for use and in interpreting the modeling results. Somewhat lost in this overly optimistic presentation is the fact that there are almost no studies that provide field-measured confirmation of the predictions provided by any groundwater model. There is also no recognition that many saturated zone modeling efforts (as well as some unsaturated zone studies) are developing stochastic, rather than deterministic, models as a means of coping with the uncertainties and heterogeneities that often preclude the successful application of groundwater models of the types presented by the authors.

The authors are clearly well informed and experienced with respect to monitoring protocols and methods, and these two chapters serve as a useful introduction to that sphere of such efforts. The authors must use their experience here, as many of the statements made regarding monitoring are rather broad generalizations unsupported by corroborating citations as presented in previous chapters. The focus is on monitoring for regulatory purposes, with no discussion of the design of a field monitoring program for the simultaneous purpose of collecting data arrayed spatially and temporally in a manner that will make that data useful for model testing. This is interesting given the prior emphasis in the book on modeling issues. There is also substantial discussion of how to collect a "representative" sample of water in a well, but very little discussion of how "representative" the well itself is by nature of its location and the sampling frequency.

I would recommend this book as an introduction to the subject matter for someone interested only in the basic terminology and appreciation of the issues on a very broad basis. Given the general dearth of comprehensive educational materials on groundwater modeling and monitoring, this book can serve as a good introductory syllabus. The figures and tables provide useful statistics and are good conceptual aids, and discussions of basic processes are informative. However, anyone already scientifically knowledgeable on groundwater issues will find reading this book a frustrating exercise due to generally incomplete discussion and sometimes misleading statements on the more subtle aspects of the topics.—R. J. WAGENET, Department of Agronomy, Cornell University, Ithaca, NY 14853.

Soil Biology and Conservation of the Biosphere (Volume 1 and 2)


The increasing use of fertilizers, pesticides, and other chemicals for growing crop yields affects the soil to a greater extent than had been imagined a few decades ago. Evidence of this is in the papers of the Eighth Soil Biological Scientific Session held on 26 to 28 Aug. 1981, in Budapest. About half of the 87 papers are from non-Hungarian sources. All of the papers are published in English, but none come from America. As a result, they may be as new to most of you as they were to me.

The 87 papers are organized into six chapters. Papers in Chapter I discuss the effect of mineral fertilization on soil biological processes. G. Muller in the first paper concluded from a 100-year-old, rye experiment, that application of organic manure and mineral fertilizers changes microfloral population density but not microfloral composition.