

**SEPM Short Course No. 32**

# **Introduction to Environmental Hydrogeology**

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# INTRODUCTION TO ENVIRONMENTAL HYDROGEOLOGY

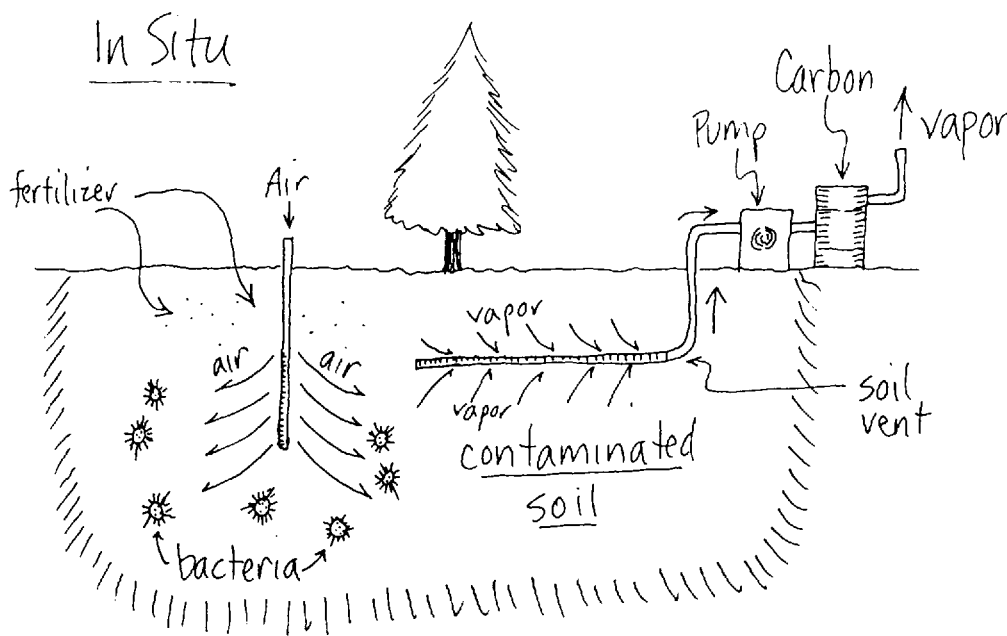
WITH EMPHASIS ON EVALUATION AND REMEDIATION OF  
HYDROCARBON CONTAMINATION IN GROUNDWATER AND SOIL,

DISCUSSIONS CONCERNING  
REGULATIONS, ASSESSMENTS, ASBESTOS, RADON, LEAD, AND SILICA, AND

AN INTRODUCTION TO GROUNDWATER MODELING  
USING SELECTED COMPUTER PROGRAMS

BY

ERIC ESLINGER, URIEL OKO, JACQUELINE A. SMITH, AND G. H. HOLLIDAY



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## PREFACE

These notes have been written to supply supporting material for a "short course" introduction to environmental hydrogeology. The assumption is that most people who take the short course (or purchase the notes without taking the short course) will be geologists, although the information could be useful to engineers or other scientists who desire an introduction to environmental consulting in general, or hydrogeology in particular.

The notes, and course, are an introduction - a partial survey - of some aspects of environmental geology, with particular reference to subsurface hydrogeology and remediation of sites contaminated with petroleum hydrocarbons. No claim of completeness is made. The materials included, or excluded, are strictly the result of the bias of the writers. In particular, no attempt was made to do a literature search on any of the topics discussed.

There are several good texts that cover the hydrology and remediation aspects discussed. We have been partial to Fetter (1988) and Freeze and Cherry (1979) for referral, although there likely are others that could as easily have been used. During the waning stages of preparation of this manuscript, we became aware of another book by Fetter (*Contaminant Hydrogeology*, 1993) which is highly recommended for those wishing an in-depth text on contaminant and remediation processes.

Regulatory programs vary from state to state. The regulatory framework used in the state of New York is sometimes given as an example. The reader should be aware that rules and procedures may differ in other states.

Uriel Oko wrote the chapter on computer modeling (Chapter 11), and George Holliday wrote most of the chapter on regulations (Chapter 1). Ron Sinzheimer, Esq. provided a short section on liability. Jacqueline Smith wrote much of Chapter 3 and parts of Chapter 6 and Chapter 7, drafted many of the figures, and put the manuscript into final form with deft editing. Eric Eslinger wrote the remainder of the text.

The actual course material draws heavily on the material in the text, but supplementary material will be distributed as needed. The last part of the course involves computer modeling. Demonstrations of several models are made, and group class problems are provided for solution.

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