

Alfred R. Conklin Jr., Rolf Meinholtz (Eds.), *Field Sampling: Principles and Practices in Environmental Analysis*, Marcel Dekker, Inc., New York, NY, 2004, 369 pages, Price: US\$ 139.95, ISBN 0-8247-5471-9.

* Tel.: +1 419 531 1322; fax: +1 419 530 8086
E-mail address: gbennett@eng.utoledo.edu

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According to the author, "The basic concept behind this book is to bring together in one place all the information and tools important for successful sampling of the environment and to present in a manner useful in both commercial and academic settings." In my opinion, he has done this well.

Interestingly, Conklin has an agricultural background. His current position is as a Professor of Agriculture and Chemistry at Wilmington College in Ohio. Consequently, much of the book focuses upon agricultural topics, but not all.

Conklin addresses a wide variety of topics important to sampling. This coverage is shown by the variety of chapters in the book:

1. Introduction to field sampling
2. Characteristics of the environment
3. Presampling
4. Safety
5. Sampling
6. Statistics
7. Modeling
8. Sampling transport and storage
9. What is present?
10. An overview of the basic principles of analytical methods
11. Traps, mistakes, and errors

Given my background which tends toward the hazardous chemical area, it is not surprising that I read the chapter on safety with much interest. It was well done. The 30 pages devoted to the topic covered the essentials of safe sampling from MSDSs to personal exposure protection.

There were excellent discussions of modern techniques such as ground penetrating radar, remote sensing, global positioning systems, and geographical information systems were briefly discussed. Appropriate followup references were given.

I quote finally from the flyer that accompanied the book:

"The book covers presampling planning and decision-making, specific sampling situations, and correct sample labeling, and presents the framework and background for the sampling of any contaminated site." It presents a "wide variety of models, quality control procedures, and valuable troubleshooting methods."

Gary F. Benett*

The University of Toledo, Department of Chemical and Environmental Engineering, Mail Stop 305, Toledo, OH 43606-3390, USA

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Emergencies Science and Technology Division, Proceedings of the 28th Arctic and Marine Oilspill Program (AMOP), Technical Seminar (two volumes), Environmental Protection Service of Environment, Ottawa, Ont., Canada, 2005, 1134 pp., USD: no cost given, ISBN: none.

Thanks to Dr. Merv Fingas, one of the editors of the *Journal of Hazardous Materials*, I have again been sent the proceedings of his excellent conference, now in its 28th year. As usual, the papers deal with a wide-ranging list of topics; 69 papers were delivered in 14 separate sessions by scientists from 14 different countries. The list of contributors is outpaced by Fingas, himself, who contributed to no less than 15 papers.

The session topic titles illustrate the wide-ranging nature of the conference coverage:

1. Physical and chemical properties and behaviour of spilled oil
2. Oil spill fingerprinting
3. Activity updates and contingency planning
4. Oil spill risk assessment
5. In situ burning and oil spill treating agents
6. Containment and recovery
7. Shoreline protection and cleanup
8. Technical seminar on chemical spills: special session on counter-terrorism
9. Technical seminar on chemical spills
10. Detection, tracking and remote sensing
11. Spill modelling
12. Biological effects of oil and oil biodegradation
13. Recent spill experiences
14. Papers from poster presentations

Given that I was reading the proceedings at the same time as the terrorist attack in the United Kingdom, it is not surprising that a session dealing with that topic caught my attention. It contained the following papers on counter-terrorism:

- The restoration project: decontamination of facilities from chemical, biological and radiological contamination after terrorist actions
- Evaluation of liquid-phase oxidation for the destruction of potential chemical terrorism agents
- Remediation following a CBRN terrorist attack: domestic and international perspectives

- The US CDC centers for public health preparedness: building a nationwide exemplar network
- Responding to a biological incident
- Radiological countermeasures: candidates for inclusion in a state strategic stockpile
- State and local levels of preparedness for terrorist incidents: the current – and sobering – US picture
- Important steps in respiratory protection: development of a selection guide for environmental and public health employees
- A summary of a recent counter-terrorism exercise

I skipped about in the book reading papers of interest to me. Most were generally well written, while the odd one contained typos that crept into the proceedings inevitably. That minor criticism aside, Fingas and his staff are to be congratulated for the work that annually produces this conference and its most excellent proceedings.

G.F. Bennett*

*Department of Chemical and Environmental Engineering
The University of Toledo, Mail Stop 305
Toledo, OH 43606-3390, USA*

* Tel.: +1 419 531 1322; fax: +1 419 530 8086
E-mail address: gbennett@eng.utoledo.edu

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K.E. Roehl, T. Meggyes, F.-G. Simon, D.I. Stewart (Eds.), Long-Term Performance of Permeable Reactive Barriers, Elsevier, Amsterdam, 2005, 346 pp., Price: US\$ 120.00, GBP 75, € 110, ISBN 0-444-51536-4.

This book is the seventh in the series “*Trace Metals and Other Contaminants in the Environment*” to be published by Elsevier. In it are described methods for the evaluation and enhancement of the long-term performance of permeable reactive barrier (PRB) systems especially those primarily designed to treat heavy metal-contaminated groundwater; the focus is on those waters contaminated with uranium. The work discussed in the book originated mainly from research performed in a collaborative project funded by the European Commission. This project, entitled “Long-Term Performance of Permeable Reactive Barriers Used for Remediation of Contaminated Groundwater,” was operational between the years 2000 and 2003. Processes that impacted barrier performance and techniques to enhance the long-term efficiency of PRB systems were studied.

Major topics discussed in the book are as follows:

- Selection and characterisation of suitable reactive materials.
- Characterisation of the relevant contaminant attenuation processes.

- Developing new contaminant-binding chemical compounds (“ligands”).
- Accelerated testing methods to assess the long-term performance of the attenuation mechanisms in PRBs.
- Evaluation of the influence of site characteristics on PRB performance.
- Monitoring of existing and new field installations.
- Coupling of electrokinetic techniques and PRB systems.
- Large-scale laboratory and field tests and their results.

The above topics are covered in 12 chapters whose titles are listed below:

1. Permeable reactive barriers.
2. Construction methods of permeable reactive barriers.
3. Materials and processes for uranium removal from contaminated water.
4. Behaviour of uranium in elemental iron and hydroxyapatite reactive barriers: column experiments.
5. Laboratory tests using natural groundwater.
6. On-site column experiments.
7. New barrier materials: the use of tailored ligand systems for the removal of metals from groundwater.
8. Electrokinetic techniques.
9. Mecsek Ore, Pecs, Hungary case study.
10. Experimental iron barrier in Pecs, Hungary.
11. Installation and operation of an adsorptive reactor and barrier (AR&B) system in Brunn am Gebirge, Austria.
12. Regulatory and economic aspects.

The final chapter ends with an “outlook” section that states the following: “PRB technology is a promising approach for the integrated management of polluted groundwater.” And so it is, but not in all cases, as each potential application has to be evaluated individually for cost and feasibility.

The last chapter discusses regulatory and economic aspects. German regulations are covered in the regulatory sections, while the economic data appear to be North America generated. Cost data include PRB capital investment and operating and maintenance (both are given in \$/m³ for over 20 sites).

G.F. Bennett*

*The University of Toledo
Department of Chemical and Environmental Engineering
Mail Stop 305, Toledo, OH 43606-3390, USA*

* Tel.: +1 419 531 1322; fax: +1 419 530 8086
E-mail address: gbennett@eng.utoledo.edu

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