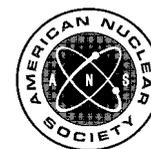


# BOOK REVIEW

Selection of books for review is based on the editor's opinions regarding possible reader interest and on the availability of the book to the editor. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



## Decommissioning and Radioactive Waste Management

*Author* A. Rahman

*Publisher* CRC Press (Taylor & Francis Group), Boca Raton, Florida (2008)

*Price* \$49.95

*Reviewer* William R. Roy

This is a new textbook that, as the title implies, covers a wide range of topics related to the decommissioning of facilities relevant to the nuclear industry in addition to waste management. Possibly the most helpful comment this review can impart to potential readers is that the title lacked four words at the end: "in the United Kingdom." The author stated that this textbook was the outcome of a training course taught at the Royal Naval College in the United Kingdom.

The author sought to create an up-to-date product that dealt with all aspects of decommissioning both in the United Kingdom and in the European Union. The author also stated that he wanted a balance between academic knowledge and industrial experience to help workers conduct "decommissioning activities safely, securely and cost effectively." To achieve this balance, the author provided 20 chapters:

1. Radiation
2. Biological effects of radiation
3. Radiological protection
4. Statistical methods
5. Decommissioning of nuclear facilities
6. Regulatory aspects in decommissioning
7. Safety aspects in decommissioning
8. Financial aspects of decommissioning
9. Project management
10. Planning of decommissioning

11. Site/facility characterization
12. Environmental impact assessment and best practical environmental option
13. Decontamination procedures
14. Dismantling techniques
15. Case histories and lessons learnt
16. Radiological waste classification
17. Management of radioactive waste
18. Treatment and conditioning of radioactive waste
19. Storage and transportation of radioactive waste
20. Disposal of radioactive waste.

These chapters are followed by six appendixes. With the exception of Chapter 15, there are between 3 and 14 review questions—many of which seemed well thought out and will test the reader's comprehension—at the end of each chapter. There are also between 2 and 46 references at the end of each chapter. The book contains 84 figures or graphs, 25 photographs, and 59 tables.

To the reviewer's knowledge, there have been no new textbooks on the management of radioactive wastes published recently—let alone a textbook on decommissioning practices. Because of the international renaissance in nuclear energy brought about by global warming, the publication of this textbook is timely. Judging by the references, the textbook is current up to early 2007. Given the level of detail provided, particularly in Chapter 6, readers in the United Kingdom may find this book very useful. Readers outside the United Kingdom may find the textbook useful for comparisons and for gaining insight on European experiences. The chapter on decontamination techniques (Chapter 13) offers a detailed discussion on proven approaches as well as new methods that could be considered. The chapter on dismantling techniques (Chapter 14) is a comprehensive and detailed overview of cutting techniques that would likely have universal interest.

While text in this new book seemed to flow well, it could possibly have been improved by additional editing or stylistic review. For example, the author created about 270 abbreviations beyond those familiar to most readers. The excessive use

of acronyms detracted from the clarity of the text. Appendix 1 is a list of these abbreviations and acronyms, but this approach seemed counterproductive. The author seemed very fond of inserting "etc." in almost every page. We do not use "etc." in technical writing. We need to be concise and leave nothing to the reader's imagination. If "etc." has been used in place of a long string of subjects that do not need to be explicitly stated, then list two or three after the expression "such as." The author missed opportunities to convey information because, in some critical areas, the subjects *did* need to be stated explicitly for clarity. The author may have missed other opportunities as well. For example, on p. 130, the author stated that "several dose prediction tools (computer code) have been developed to assist the ALARA/ALARP consideration in job planning." Unfortunately, the author provided neither the names nor literature citations for these tools. Moreover, some of the tables are really checklists containing very practical, but general, information. However, at least these lists have been compiled in one

place (this book) and can serve as food for thought for the reader.

In summary, I would recommend the textbook to the professional, especially if that person needed to learn about decommissioning and waste management practices in the United Kingdom. This comprehensive book will certainly bring one up to speed. As far as teaching these subjects outside the United Kingdom, this book might have limited value as the primary source of information.

*William R. Roy (PhD, Soil Physical Chemistry, University of Illinois, 1985) is currently a Senior Geochemist at the State Geological Survey, and an Adjunct Professor in the Department of Nuclear, Plasma, and Radiological Engineering at the University of Illinois. His research interests are geochemical modeling, fate and transport of groundwater contaminants, and geologic carbon sequestration. He also teaches a course on radioactive waste management.*