

the different elements of the papers presented by the contributors ending with the following statement:

“The contributors to the Workshop on Flocculation in Natural and Engineered Systems have provided herein some integral elements to advancing our understanding of flocculation processes; however, the work is only just begun. By integrating resources, expertise, and ideas, researchers will continue to advance our knowledge in this vitally important environmental, economic, and public health issue.”

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Confined Space Entry and Emergency Response, D. Alan Veasey, Lisa Craft McCormick, Barbara M. Hilyer, Kenneth W. Oldfield, Sam Hansen, Theodore H. Krayer, Wiley Interscience, Hoboken, NJ (2006). (507 pages, US\$ 89.95, 8.5 in. × 11 in. format, soft cover, ISBN 0-471-77845-1).

This book was written as a trainer’s manual by the staff of the Workplace Safety Training Program at the University of Alabama at Birmingham.

Confined space entry is dangerous. The authors note that there were 670 fatalities in the 1980–1989 time period from asphyxiation, poisoning, and drowning. Of this number, 60 were rescuers. To emphasize the dangers noted above, the authors describe incidents that resulted in deaths in the prefaces of several chapters.

In the preface of this book, the authors describe its main features as follows:

“The book provides complete information, guidance, regulatory reference, and case studies for all personnel who plan for, supervise, work inside, or provide rescue from confined spaces. The reader is taken carefully through each step from the identification of confined spaces and their hazards, control of and protection from the hazards, equipment, and procedures for operations, to complete preparation for the rescue. A CD accompanies the book. On the CD the user will find materials for use in training, using this book as a textbook or reference. The CD includes learning objectives and lesson plans for each chapter, slide presentations for overhead transparencies or PowerPoint presentation, instructions for building and using confined space field simulators, worksheets for classroom hazard analysis and planning, and suggestions for hands-on practice with air monitoring equipment, personal

protective equipment, and entry and rescue equipment, such as ropes, webbing, harnesses, hardware, and portable anchor systems.”

I was impressed by the topic coverage. There are 15 well-written chapters comprehensively (in my opinion) describing the problem of confined space entry, including its dangers and the safe methods of carrying out work and/or rescue efforts. The chapter titles are as follows:

1. Introduction to confined spaces.
2. Regulatory and administrative aspects of confined space entry and rescue.
3. Identifying confined space hazards.
4. Air monitoring in confined spaces.
5. The entry permit.
6. Controlling confined space hazards.
7. Respiratory protection.
8. Chemical protective clothing.
9. Personal safety equipment.
10. Safe use of personal protective equipment.
11. Ropes, webbing, harnesses, and hardware.
12. Tying knots.
13. Rigging and using basic systems for confined space operations.
14. Making entry safely.
15. Overview of confined space rescue.
16. Rescue team organization and management.
17. Rigging and using rescue systems.
18. Packaging and transferring patients for confined space rescue.

One can see from the chapter list that confined space entry is comprehensively covered. I was impressed by (among other things) the discussion of air monitoring in confined spaces; instrument use is thoroughly discussed. Examples of permits for confined space entry and hot work are included.

Respiratory protection is discussed. Included is information on self-contained breathing apparatus (SCBA), supplied air, gas and vapor (cartridge) respirator, respiratory fitting, testing, maintenance, repair, and cleaning.

The final section of the book deals with the results of not following the safe procedures outlined in the first 15 chapters—and that is rescue.

My only concern for the contents of this book is minor; that is the number of references, or the lack of thereof, to the chemical hazard literature. There are very few references cited in spite of the fact that there are many books containing chemical hazard data that could have been referenced. The foregoing comment is not to say that chemical hazards are neglected in the text. They are discussed in Chapter 3 but are not well referenced to the literature.

In summary, I thoroughly enjoyed reviewing this book and the accompanying CD. I strongly recommend it to anyone involved in confined space entry at the operational or training level.

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R.L. Brauer, Safety and Health for Engineers, second ed., Wiley-Interscience, Hoboken, NJ, 2006 (764 pages, US\$ 94.95, ISBN 0-471-29189-7).

The author of this book, Brauer, caught my attention early in the introduction with the following comment: "Although life has improved and has been extended, citizens of the United States pay a high price for their high-technology lifestyle. Each year there are more than 100,000 accidental deaths, and nearly 10 million disabling injuries. The cost of all accidents in the United States is approximately US\$ 600 billion annually, excluding some indirect costs and the value resulting from pain and suffering." Later, the author notes that there are approximately 4500 work-related deaths each year (this is a death rate of 3 people per 100,000 for all industries) and 35 million injuries involving one or more days away from work. Brauer notes: "The total cost in lost wages, medical expenses, insurance, fire losses, and other indirect costs associated with these work-related accidents is more than US\$ 150 billion annually." Lost time due to accidents amounts to 100 million lost work days per year.

Engineers have, according to Brauer, "... an important role in reducing risks placed on society by modern technology, its products, and its wastes. Although engineers cannot bear the total blame for safety and health risks, engineers are able to help reduce them to levels acceptable to society. In planning, design operations, maintenance, or management activities, engineers should be able to recognize hazards and implement controls for them. Engineers should know how to eliminate, reduce, or control safety and health risks within their sphere of responsibility."

Towards this goal, Brauer has written a comprehensive guide that helps engineers reconcile safety and economic concerns using the latest cost-effective methods of insuring safety in all facets of their work.

He accomplishes this goal in 38 well-written chapters which are divided into five main sections as follows with the number of chapters in parentheses:

1. Introduction (3).
2. Laws, regulations, and standards (5).
3. Hazards and their control (22).
4. The human element (3).
5. Managing safety and health (5).

I was impressed by the comprehensive coverage with topics that ranged from machine safety to safe trenching and from lock-out/tagout to preventing falls. However, I presume readers of this periodical would focus on other concerns if they were to purchase this book such as transportation of hazardous materials; fire protection, prevention, and suppression; flammable materials, explosions, and explosives; and ionizing and nonionizing radiation. Incidents at Three Mile Island and Chernobyl were reviewed. Also discussed were biohazards such as *Legionella pneumophila*. This section also had chapters that reviewed hazardous wastes (past disposal problems, definition, control, treatment, and disposal) and personal protective gear. The foregoing are only a few of the many topics in this area that were discussed.

I have only briefly, perhaps too briefly, noted a few of the many safety hazards discussed in this book. My review probably is not sufficient enough for the comprehensive treatment of the topic provided by the author, but with the book having over 700 pages, to do otherwise would make this review much too long. The book is well written, easy to read, and wide in scope.

Finally, the author provides four end sections for each chapter. They are:

1. Exercises.
2. Review questions.
3. Notes (which really are mainly bibliographic entries).
4. Bibliography.

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