

## Book reviews

**Elements of Environmental Chemistry, R.A. Hites. John Wiley & Sons Inc., Hoboken, NJ (2007). 212 pp., Price: US\$ 40.00, ISBN: 978-0-471-98815-0**

“*Elements of Environmental Chemistry* uses real-world examples to help readers master the quantitative aspects of environmental chemistry.” This task is accomplished by using problems and their solutions. Posing problems and having students solve them provides them with a toolbox for understanding the complex issues in the environment. In addition to providing students with problem solving skills, this book provides the basic concepts of environmental chemistry.

The table of contents is shown below selectively:

Chapter	Title
1	Simple tool skills
2	Mass balance—steady and non-steady state
3	Atmospheric chemistry—atmospheric structure, ozone, smog, kinetics, greenhouse effect
4	CO <sub>2</sub> equilibria—pure and polluted rain, surface water
5	Fates of organic compounds—vapor pressure, water solubility, Henry’s law constant, partition coefficients, lipophilicity, fish partition coefficients, adsorption, water–air transfer
6	Toxic environmental compounds—pesticides, mercury, lead

Numerous problems for student assignment are provided in each chapter. In my opinion, these are very interesting problems as many are based on (or described) real life applications. Numerical answers for each problem are found in the Appendix, while full solutions are available on the Internet. Hites strongly recommends students solve each problem and not just say “I could do it if I wanted to.”

Hites notes that only a few supplementary lectures would be needed to explain the material using this book. I am not sure I agree that only a few lectures are needed. Personally, I would discuss the environmental topic at hand at greater length than he suggests and then assign the chapter problems relating to the topic. I was impressed by the scope of the problems and their relevance to the subject. Were I still teaching, I would seriously consider adopting this book as a supplementary text in courses on air and water pollution.

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**Water Infrastructure Protection and Homeland Security, F.R. Spellman. Government Institutes/Scarecrow Press, Landham, MD (2007). 295 pp., Price: US\$ 79.00, ISBN: 978-0-86587-418-3**

“This book (the author notes) was written as a result of 9/11 and in response to the critical needs of water/wastewater plant managers, plant engineers, utility managers and anyone with a general interest in the security of their water/wastewater facility.”

Working for a large sanitation district, Spellman decided that his district was failing to address steps needed to protect his facilities (wastewater treatment plants, maintenance centers, pumping stations, and main office complexes). These security items were discussed and the following list of required security steps was compiled: awareness, vulnerability assessment, needs list, presentation of findings and recommendations, commission presentation, implementation, and outside contractors/visitors.

To illustrate the seriousness of the problems facing water infrastructure installations, Spellman describes the wide range of processes involved in water and wastewater treatment systems. He also discusses the US EPA Water Protection Task Force established in 2001. This discussion is followed shortly by an excellent review of “Vulnerability Assessment” that runs 15 pages. That dialogue follows some amazing statistics regarding the number of potential targets in the United States: 100,000 pumping stations, hundreds of thousands of miles of water distribution systems and sanitary sewers, and 200,000 miles of storm sewers. The foregoing constitute one of the country’s most valuable resources valued at \$2.5 trillion.

Drinking water systems receive special attention (as they should) with a thorough discussion of the threats and the many possibilities for contamination through introduction of bacteria, viruses, cyanides, molds, pesticides, biological toxins, and radionuclides. Even cyber security is discussed, as competent