

short half-lives of 0.02 h for carbon tetrachloride and as long as 12.6 h for vinyl chloride.

Four appendices complete the book.

- A. Additional Site Characterization and Monitoring Issues
- B. Supporting Information for Hydrogeologic Modeling
- C. Supporting Information for Geochemical Modeling
- D. Construction Quality Control

Personally, I found the book to be one of the most timely, well-written and informative books that I have reviewed in a long time. I would recommend its purchase by anyone interested or involved in remediation work.

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Clean Air Handbook, 3rd Edition, F. William Brownell, (Ed.), (Hunton and Williams) Government Institutes, Rockville, MD, 3rd Edition, 1998, \$95.00, 324 pp (8 1/2 × 11 in.), ISBN: 0-86587-616-9

Environmental laws are complex. US environmental laws are very complex, and of the many major US environmental laws, the Air Pollution Control Act is one of the most complex. For a general overview of the US environmental laws, I turn to Government Institutes Environmental Law Handbook, many editions of which I have reviewed previously in this journal. For details of each law, I turn to their specialty books. This is one of those books that treats a major law governing single environmental area: The Clean Air Act, which, this book notes, is constantly evolving.

The book begins at the beginning of the appearance of laws governing air pollution (or at least close to it) by describing almost the first Clean Air Act (of 1967) which had as one of its main purposes “to protect and enhance the quality of the Nation’s resources and to promote the public health and welfare and productive capacity of the population.” The 1967 Act focussed on regulation of ambient air quality to protect health and welfare. But it had deficiencies, so Congress produced major amendments to it in 1976. Those amendments remain the centerpiece of present day air quality regulations. Further amendments followed in 1977. In this Act, hazardous air pollutants were addressed (among other things).

The background having been established, Brownell et al. move to the more recent Act, the 1990 amendments, to which they add in the heading (to Chapter 2) ‘An Ascendant Federal Partner.’ This law is exceedingly complex, more so than any previous environmental legislation resulting in the creation of substantial new regulatory responsibilities. The law’s major sections are as follows:

- Title 1–The non-attainment program
- Title 2–Mobile sources, fuels and fuel additives
- Title 3–Air toxics
- Title 4–Acid rain
- Title 5–The operating permit program

Chapter 3 (of the book) discusses ‘Implementation of Natural Ambient Air Quality Standards and Nonattainment.’ This chapter deals with the main goal of the act which is to achieve healthful “ambient (or outdoor) air through EPA-promulgated national air quality standards.”

Control Technology Regulation is the title of Chapter 4. Its introductory paragraph is as follows:

“The Clean Air Act provides for two types of air pollution control measures: ambient air quality-based emission standards designed to protect public health and welfare, and control technology-based emission standards designed to preserve air quality and to ensure the use of advanced emission controls.”

Subsequent chapters deal with:

- Operating and preconstruction permitting programs
- The acid deposition control program
- Hazardous air pollutants
- Regulation of mobile sources of air pollution
- Stratospheric ozone protection
- Enforcement and judicial review
- Trends in clean air act regulation and legislation

Of the foregoing chapters, I was most interested in the one dealing with hazardous air pollutants. The 1990 Amendments established a list of 189 hazardous air pollutants that must be addressed by the new air toxics program.

Another chapter of interest was the one on enforcement. In it, the authors note the EPA:

- reported that the combined total of all criminal and civil penalties assessed for violation of environmental laws in fiscal year 1996 exceeds \$172 million (the highest in history).

- the Pollution Prosecution Act of 1990 authorized EPA to increase its number of criminal investigations to 200 compared to 47 in fiscal year 1989

- enforcement, under the 1990 amendments, is easier.

The final chapter is a forward looking one entitled “Trends in Clean Air Act Regulation and Legislation.” In it, EPA’s mandate (through the laws) to make rules is discussed. Indeed, Congress set many deadlines for EPA (many of which have been missed).

I’ll end my review with Brownell’s final paragraph:

“In sum, implementation of the Clean Air Act will continue to present significant new challenges for both EPA and industry—challenges that will expand in scope and complexity as interstate and international air pollution issues increasingly become the focus of the legislative debate during the coming decade.”

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Risk Management Planning Handbook: A Comprehensive Guide to Hazard Assessment, Accidental Release Prevention and Consequence Analysis, A. Roger Greenway,