

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,

Government Institutes, Rockville, MD, 1998, \$89.00, 350 pp. (8 1/2 × 11 in.), ISBN: 0-86587-615-0

The leak of several tons of methyl isocyanate at a Union Carbide plant in Bhopal, India, in 1984 killed several thousand people and injured two hundred times more. But as devastating as that accident was to the nearby residents, its worldwide impact (at least financially) was even greater. Bhopal spawned many laws whose goal was to make sure such an accident never happens again.

In the first chapter, entitled “The Risk Management Plan: What it Is and Why You Need One,” the author outlines the book’s purpose:

“The chemical accidental release prevention regulations of 40 CFR Part 68 require the owner or operator of stationary sources at which a regulated substance is present in more than a threshold quantity to prepare and implement a risk management plan to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the environment.

These risk management plans must include a hazard assessment that specifically evaluates the potential effects of an accidental release of any regulated substance. The hazard assessment must include an estimate of potential release quantities and downwind effects, including potential exposure to populations. The assessment also must include a five-year release history, including the size, concentration, and duration of releases, and must consider worst-case release scenarios. The risk management plan must also document a complete prevention program, including safety precautions, maintenance, monitoring, and employee training measures. The final element that must be documented in the risk management plan is an emergency response program that provides specific actions to be taken in response to a release to protect human health and the environment, including informing the public and local agencies, emergency health care, and employee training.”

The goal of requiring these plans is to reduce the frequency and severity of impact of accidents involving toxic (hazardous) chemicals. If this planning process has the same results as the oil spill prevention program in the USA, they will. The EPA requirement to prepare spill plans for oil storage facilities has markedly reduced the number and severity of oil spills in the United States since the adoption of these rules in the 1970s.

Inside the cover of this book, the author asks four questions that will allow someone to determine if his/her industry is required to prepare a Risk Management Plan (RMP). Personally, I feel that if toxic chemicals are handled, used, or produced, such a plan should be prepared regardless of the law’s requirements. I feel this way because I believe the planning process, if performed conscientiously, will reduce the likelihood of an accident and/or release of hazardous chemicals.

The US EPA has adopted and modified OSHA’s process safety management standards. This program covers nine procedural areas:

- process hazard analysis
- process safety information (Chapter 3)
- standard operating procedures (Chapter 4)
- training (Chapter 5)

- maintenance
- pre-startup review
- management of changes
- safety audits (Chapter 6)
- accident investigation (Chapter 7) Each of these topics is covered well in the book. Other chapters discussed [chapter number shown in ()]:
- Establishing an Emergency Response Plan (8)
- Handling Registration Procedures (9) [of the plan which must be supplied to the EPA]
- Totaling the Costs (10)
- Avoiding Penalties (11)
- Coordinating with OSHA's Process Safety Management Standard (12)
- Determining Program Levels of RMP (13)
- Choosing Analytical Methods (14)
- Selecting Inherently Safer Approaches (15)

I was particularly interested in the modeling (Chapter 15) in which the author discusses the many approaches that can be used to determine downwind concentrations of released chemicals. The simplest (but least accurate) method is to use USEPA-supplied tables—but the approach will “likely (to) produce worst-case concentrations that exceed any reasonable, likely concentration to be produced by an accidental release.” A more sophisticated approach is to use a (computer) model such as: T/Screen, Cameo/Aloha, Degadis, Slab, Screen 3 and ISCT3.

The author's writing ends at p. 120 to be followed by extensive appendices including:

- EPCRA 302: List of Extremely Hazardous Substances
- EPA's Title III: List of Lists (Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112 (r) of the Clean Air Act as Amended April 7, 1997)
- 40 CFR Part 68: Chemical Accident Prevention Provisions
- NASA's Lewis Safety Management and the Safety Permit System
- Risk Management Plan Data Elements
- Sample RMP for Propane Industry

Ordinarily, I chafe at extensive appendices, but in this case, (including the inclusion of 60 + pages from the Federal Register) they are warranted. I especially appreciate the inclusion of two example RMP plans (or elements thereof) as the last two appendices.

My only negative comment is that the book provides few references to the literature; conversely, it does cite government sources (CFR, EPA, etc.) well.

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Practical Environmental Bioremediation: The Field Guide, R. Barry King, Gilbert M. Long and John K. Sheldon, Lewis Publishers, Boca Raton, FL, 2nd edn., 1997, US\$79.95, 184 pp., ISBN: 1-56670-208-9