

**6. Economic Methodology for Valuing Natural Resource Damage (basic components of valuation, assessing natural resource damage, measuring use and non-use value, economic methodology of valuing natural resource damage)**

**App. A — Code of Federal Regulations 43, Part II**

**App. B — Federal Regulations 56 (an extensive compilation of regulations taking up the last 60 pages of the book)**

While the book will be most used by lawyers, environmental engineers, whose facilities have the potential for damage to the environment (and which ones do not?) will want to be aware of the potential liability of doing so. To this end, the book will be very useful.

GARY F. BENNETT

*Pentachlorophenol Toxicity, Case Studies in Environmental Medicine, No. 23, Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, GA, 1993, 20 pages*

Pentachlorophenol was one of the most widely used biocides in the US. Although it is no longer available to the general public, it continues to be an exposure risk. Exposures can occur from volatilization of the chemical from treated surfaces and from skin contact with treated wood. Pentachlorophenol has been found at 235 of the more than 1300 hazardous waste sites on the National Priorities List.

Following the above summary and alert, the document follows the format as in the previous 22 published studies. The case study begins with a 63-year-old male with weight loss, fever, dyspnea, and rash. He was sweating profusely and mildly tachypnoeic, and exhibiting confusion when talking. Recovery from a broken hip suffered 12 months ago has been slow. He lives alone in a log cabin that has only natural ventilation and is heated by a wood stove.

In 1987, EPA banned pentachlorophenol for all nonwood products, as a suspected carcinogen. It has been used as a preservative in the manufacture, and treatment, of a variety of commercial products to prevent decay from microorganisms, mold, and mosses.

The common acronym for pentachlorophenol is PCP. The street drug phencyclidine (angel dust) is also referred to as PCP but has a different pathophysiology and has no chemical relationship to pentachlorophenol. Most lumber produced commercially in the US is still treated routinely with sodium pentachlorophenate solution. Due to the extensive use, it is present in air, water and soil. Contaminated food and water supplies are common sources of human intake. Infants and children are predisposed to increased PCP exposure by their greater surface area-to-weight ratios, as well as hand-to-mouth and play behaviors. PCP toxicity manifests primarily as a clinical syndrome of hyperthermia with associated rhabdomyolysis. The question of human carcinogenic effects is currently under review.

A section on clinical evaluation, including signs and symptoms and laboratory tests summarizes the recommended procedures for patient workup. Treatment and

management for acute, as well as chronic exposure, are suggested, as is a reading list of references, and a post test which can be returned to Atlanta for verification.

As with the other studies in this series, the information would be invaluable for chemists, industrial hygienists, physicians, and anyone working with or concerned with this or related compounds.

HOWARD H. FAWCETT

*Innovative Site Remediation Technology: Thermal Desorption*, edited by W.C. Anderson, American Academy of Environmental Engineers, Annapolis, MD, 1993, 148 pages, price US\$ 49.95, ISBN 1-883767-06-7

*Thermal Desorption* is the first in a set of eight monographs on innovative site remediation technology being prepared by the WASTECH® project. Other volumes are to follow on bioremediation, chemical treatment, soil washing/soil flushing, solvent/chemical extraction, stabilization/solidification, thermal destruction, and vacuum vapor extraction. The book has five distinguished principal authors (from academia, industry, consulting and government). More impressive, however, was the extensive list of reviewers — the list exceeds 20. Actually the introduction says that over 100 experts were involved over a two-year period in the production of this volume.

The book has seven chapters (and six appendices). The contents of each chapter are discussed (briefly) below.

1. Introduction — Background; objectives and scope of the process.
2. Process summary — The chapter begins with an excellent description of the process. "Thermal desorption is an ex situ means for physically separating organics from soils, sediments, sludge, filter cakes and other solid media." Four types of units, their design, pretreatment and posttreatment requirement are discussed. These four units are (1) direct-fired rotary desorbers; (2) indirect-fired rotary desorbers; (3) direct- or indirect-heated conveyor systems; and (4) the SoilTech system.
3. Process identification description — This chapter provides a comprehensive scientific discussion of each technology, discusses the status of technology development, health and safety considerations, design and operation, data post-treatment requirement (if soil or gas), environmental impact, and comparative costs (cost data though extremely useful are often very difficult to find in the literature, and the amount of cost data given here is, however, fairly limited).
4. Potential applications — Topics covered in this chapter are how to determine the applicability of thermal desorption via treatability testing and the quality of the residuals to be expected from thermal desorption processes. I found the book's list of 28 thermal desorption projects of real interest; VOCs and PCBs were the key contaminants addressed (removed).
5. Process evaluation — Given that past experience teaches many lessons, this chapter reviews case studies of full-scale treatment systems as well as