

Cost of Remedial Response Actions at Uncontrolled Hazardous Waste Sites, by H.L. Rishel, T.M. Boston and C.J. Schmidt, Noyes Data Corporation, Park Ridge, NJ, February 1984, 144 pages, \$32.

This book was originally published as a report submitted to the Remedial Action Technology Program of the Solid and Hazardous Waste Research Division of the U.S. Environmental Protection Agency, by the authors who are members of SCS Engineers', Long Beach, CA.

As the U.S. faces costs exceeding \$10 billion needed to address the problems of cleaning up the nation's uncontrolled waste sites, it is important to have data one can use to estimate remedial action costs. This book is a first attempt at collation of those costs.

In their report, the authors present conceptual design cost estimates for 35 remedial action unit operations at uncontrolled hazardous waste or surface impoundment disposal sites. Examples of cost estimates include: grout curtains, drains, chemical fixation, gas migration control, ponding, etc. The authors give cost ranges for the U.S. (high, low and specific for Newark, NJ) in unit terms — square meters of slurry out off wall, for example. Both capital and operating costs are reported for each unit operation.

The next step to be expected from the USEPA is the compilation of actual costs incurred as the agency collects data from its remedial action contractors as they bid and complete cleanup projects at superfund sites.

GARY F. BENNETT

Genetic Engineering and New Pollution Control Technologies, by J.B. Johnston and S.G. Robinson, Noyes Data Corporation, Park Ridge, NJ, February 1984, 131 pages, \$32.

In the executive summary to this US Environment Protection Agency sponsored study, the authors write:

"The objectives of this study were to document the basis for developing new pollution controls using genetic technology, to describe the present state of such developments and to recommend a research policy for such an appraisal . . . The study identified a small number of research topics that are currently underscribed and that are likely to contribute substantially to new pollution treatments if research support were made available."

The pollution problems identified as potentially being amenable to genetic engineering include:

- Phosphorous removal
- Ammonia oxidation
- Flocculation
- *In situ* treatment

It is this latter topic that will probably be of most interest to readers of this journal, as the problem of cleanup of uncontrolled hazardous waste sites and detoxification of hazardous wastes are addressed. Perhaps PCBs, kepone and dioxin could be successfully and economically detoxified by genetically manipulated organisms.

GARY F. BENNETT

Practical Waste Management, by J.R. Holmes (Ed.), John Wiley and Sons, New York, NY, 1983, 565 pages, \$70.95.

A few years ago, there would have been nothing in a text on solid waste management that would merit review in this journal, as normal (residential and commercial) waste disposal is not a topic ordinarily discussed here. But modern waste texts should, and this one does, deal with conveyance, treatment and disposal of hazardous wastes.

Four chapters of this United Kingdom, multi-authored book deal with hazardous waste and its disposal. The first of these chapters was written by A. Parker of Harwell Laboratory, where much of the U.K. hazardous materials and hazardous wastes research is being carried out. Parker discusses leachate production in general, but since U.K. landfills often (by design) contain hazardous waste (called co-disposal), he discusses the retention capacity of these sites for halogenated organics, cyanides, heavy metals, etc.

The second chapter in the text dealing with hazardous wastes (actually the tenth chapter in the book) is by Khan. Khan's message is very clear and well-telegraphed by the title of his chapter, "Co-disposal of Wastes — a Positive View of Sanitary Landfill by a Pollution Control Official." In the middle of his chapter he writes:

"A waste disposal facility operated on a strictly scientific basis and taking domestic waste and a calculated percentage of industrial hazardous waste and non-hazardous waste in both liquid and dry solids can provide a realistic, local, safe waste disposal outlet for many industries in the region."

Seemingly out of place in this chapter are several pictures of hazardous waste disposal "gone wrong". Indeed that topic was the subject of Khan's 1981 U.S. paper at the Conference on the Management of Uncontrolled Waste Sites. Perhaps he should have been asked to author a second chapter on this topic.

The 13th chapter is on the "Carriage and Transport of Liquid Waste," by H.W. Luther of Waste Management Ltd. He comprehensively reviews the safe transport of liquid hazardous wastes including current legislation, vacuum tanker design, placarding and training of drivers.