



## Book review

### **Remediation Technology Cost Compendium—Year 2000**

US Environmental Protection Agency Office of Solid Waste and Emergency Response Technology Innovation Office, Washington, DC, EPA 542-R-01-009, September 2001, US\$ 0.00 (free), 74 pp.

Many years ago a librarian told my chemical engineering students that the most prolific publisher in the world was the Federal Government. One of the major contributors to their output was the US EPA. Unfortunately, many of their publications are not publicized and do not get the use they warrant. Thus, I review here a short but, I think, very useful monograph.

I have previously reviewed Richard Rust's compendium entitled "Environmental Remediation Estimating Methods." His book allows one to calculate cleanup costs by unit operations, e.g. itemized costs for excavation, well installation, piping, soil washing, etc. (distinct unit processes with costs based on each treatment unit, for example, in cubic yards, of materials treated or for each well installed). This book reports total project costs.

Remediation Technology Cost Compendium reports the total project costs for six remediation technologies: (1) bioremediation; (2) thermal desorption; (3) soil vapor extraction (SVE); (4) on-site incineration; (5) groundwater pump-and-treat and (6) permeable reactive barriers (PRBs). Cost data were obtained from federal agencies involved in remediation projects. Data from approximately 150 projects were used in this analysis. An additional 270 projects are being evaluated for more cost data. These data are being added to the Federal Remediation Technologies Roundtable (FTTR) site: <http://www.ftrr.gov>.

The overall summary of the project's findings is reprinted below:

- Correlations between unit costs and quantity treated or mass removed were evident for four of the six technologies—bioventing, thermal desorption, SVE and pump-and-treat systems.
- Economies of scale were observed for the four technologies where unit costs decreased as larger quantities were treated.
- Costs of technology applications are site-specific and are affected by many factors.
- Several additional factors affect all technologies.

Each of the six sections (for the six noted cleanup technologies) includes a brief description of the technology, a discussion of the methodology used in the cost analysis, and the results of the cost analysis. Of the four technologies for which cost curves (cost is plotted versus volume of soil treated), bioventing had the best correlation. No correlations were developed for either on-site incineration or pump-and-treat systems.

A companion series of monographs is entitled "Abstracts of Remediation Series." I have two of the latest volumes in this series which began in 1995 as EPA series EPA-542-R-955. The latest volume I have (EPA-542-R-01-008) was published in May 2001. It, as are the others, is a collection of abstracts summarizing 56 case studies of site remediation applications conducted primarily by federal agencies. In all, the volumes contain (also available on a CD-ROM) 274 remediation case studies.

The case studies are abstracts presenting available cost and performance data for full-scale and several large-scale remediation projects. Data are given on site background, contaminants, media treated, technology used, cost and performance data, and contact sources for the technologies utilized, which were:

- in-situ soil treatment;
- ex-situ soil treatment;
- drinking water treatment for MTBE;
- pump-and-treat;
- in-situ groundwater treatment and
- containment.

Volume 4 has additional topics such as incineration abstracts, thermal desorption abstracts and debris/solid media treatment abstracts.

G.F. Bennett