



Project Summary

Remedial Action Costing Procedures Manual

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The full manual provides specific procedures for the cost estimating and economic analysis steps required for preparing engineering cost estimates for selecting remedial action alternatives in response to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan (40 CFR 300). The manual is designed to be used in conjunction with EPA's manual entitled *Guidance on Feasibility Studies Under CERCLA*. The audience for this manual includes EPA Regional Project Officers, remedial investigation/feasibility study contractors, and state and local remedial action personnel and other Federal agencies. Detailed procedures are provided for generating estimated capital and annual operating costs, calculating annual costs and present worth for each remedial action alternative, and performing sensitivity analyses of the cost estimates to determine the impact of changes to various cost input parameters. Worksheets are provided to assist the user in developing the feasibility cost analyses. An example cost analysis is provided to illustrate these procedures.

This Project Summary was developed by EPA's Hazardous Waste Engineering Research Laboratory, Cincinnati, OH, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Introduction

As the number and scope of remedial actions at uncontrolled hazardous waste disposal sites increase, there is a corresponding need for standard procedures for preparing engineering cost estimates for proposed remedial solutions. The National Contingency Plan (NCP) of 1982 outlines a general approach for conducting remediation at Superfund sites. The purpose of the manual is to provide specific procedures for the cost estimating and economic analysis steps required for the various remedial action planning phases. These phases are:

- Preparing an initial assessment of remedial action alternatives to establish a general cost for the remedial investigation/feasibility process and initial remedial measures,
- Screening remedial action alternatives during feasibility analysis to eliminate those alternatives for which the costs are substantially greater than other alternatives and yet do not provide a commensurate public health or environmental benefit,
- Preparing detailed cost estimates for feasibility studies to aid in selecting a remedial action alternative.

The full manual presents procedures and provides worksheets to accomplish the cost analysis objectives of the phases. The guidance presented has been developed for generalized conditions at uncontrolled hazardous waste disposal sites. The user should modify these procedures where necessary to accommodate site-specific conditions.

The anticipated audience for this document includes those persons responsible for Superfund remedial actions: EPA Regional Project Officers, remedial investigation/feasibility study contractors, state and local remedial action personnel, and other Federal agencies. This manual should also be useful to those involved in planning state- and private-lead and voluntary actions, particularly to demonstrate to the public and other interested parties that the selection of a remedial action alternative was conducted according to EPA approved procedures.

Discussion

Chapter 2 of the full manual addresses initial site planning cost estimating. Site response assessment costing is important because it sets the tone for the remedial investigation and feasibility study, and gives a rough estimate of the level of effort and funding necessary to address site problems under Superfund. It is a fairly straightforward procedure requiring minimal time and effort to complete. It should be noted that these initial costs will be superseded by costs derived during the feasibility study process.

The purpose of Chapter 2 is to define the steps of the site response assessment process and offer guidelines as to how costs for each of these steps may be derived. With this data the reader should be able to:

- Construct a site response assessment report outline and identify areas which require estimating.

- Assign order-of-magnitude costs to the applicable sections of the site response assessment report format.
- Determine total order-of-magnitude costs for site RI/FS activities and remedial alternatives available at the site assessment stage.

Chapter 3 describes standard procedures for preparing cost estimates for remedial action alternatives being evaluated during feasibility analysis. Initial site planning cost estimating efforts, discussed in Chapter 2, are based solely on existing data and are performed to provide general cost data associated with

RI/FS activities, Remedial Removal measures, and remedial alternatives. Feasibility study cost estimating is aimed solely at providing remedial alternative costs using information collected during the investigation. The sections in Chapter 3 provide an overview of the costing process for both screening and detailed feasibility analysis of alternatives; procedures for economic analysis; guidance on the use of sensitivity analysis; and an example illustrating these cost analysis procedures. Additionally, worksheets are provided to assist the user to estimate, analyze, and present costs for remedial action alternatives.

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