



ENVIRONMENTAL REMEDIATION

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Environmental Remediation

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Executive Summary

Remediation of environmental contamination from past industrial practices represents a substantial percentage of annual expenditures by industry and government. Despite the experience gained with contaminated site remediation and development of new technologies, the ability to predict cost and schedule of remediation projects remains poor.

The Construction Industry Institute Environmental Remediation Technology Research Team, comprised of practicing environmental professionals and academics experienced in remediation, investigated reasons for the growth in cost and schedule of remediation projects and identified methods and procedures to control these cost and schedule issues.

The research concluded that: (1) remediation projects differ fundamentally from conventional construction projects because of uncertainties in site characterization, clean-up technology performance, and regulations; and (2) it is the effective management of these factors, rather than technological advances, that can result in the largest cost savings in the near term.

The research conducted resulted in three CII documents with the following themes:

Avoid the “Ready, Fire, Aim” Syndrome

Huge expenditures are at risk in environmental remediation projects. The eight-step process developed in CII Implementation Resource 48-2, *Environmental Remediation Management: An Eight-Step Process*, will save big money and prevent schedule delays for owners and contractors. Owners are counseled to proactively manage remediation projects to realize these savings. Contractor's financial risks will be minimized by implementing these recommendations.

“Think First, Dig Later”

Documented cases of errors in excavating and handling of unexpected soil contamination on conventional construction projects, which could have been avoided, resulted in substantial extra costs and time delays. A path is charted for both owners and contractors in CII Implementation Resource 48-3, *Influence of Potential Soil Contamination on Construction Projects*, to manage these uncertainties and avoid unexpected problems.

“Old Ways Don’t Work Well”

Cooperative management approaches and more flexible contracting relations, as documented in CII Source Document 106, save cost and time for owners and contractors. The team’s research indicates that Turnkey and Design/Construct management structures are the most effective for remediation projects.

The three works cited above are summarized in this publication. Readers are encouraged to use these resources as they begin their next environmental remediation projects. Significant savings can be achieved through better planning, project execution, and use of technology.

Introduction

The CII Environmental Remediation Research Team was formed for two reasons: to examine potential improvements in cost and schedule, and to address the huge expenditures being committed by government and industry for environmental remediation. With such a broad mandate, the team examined a number of areas of possible focus, including remedial technology reviews and interactive computer models.

From the wide-ranging discussions of the research team, a consensus emerged that the efficiency and cost-effectiveness of remediation projects could be improved significantly through more informed and proactive management and planning. Thus, the team selected three areas of management of environmental remediation for study. Investigations were conducted to identify:

- 1) An improved management process for contaminated site remediation projects.
- 2) Approaches for management of unanticipated soil contamination on conventional construction projects.
- 3) Owner/designer/contractor relationships most conducive to successful completion of remediation projects.

This publication provides an overview of the three investigations performed by the research team and the resulting documents that were produced.