
Superfund Risk Assessment in Soil Contamination Studies

Keith B. Hoddinott, editor



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Peer Review Policy

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The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution to time and effort on behalf of ASTM.

Foreword

This publication, *Superfund Risk Assessment in Soil Contamination Studies*, contains papers presented at the symposium of the same name, held in New Orleans, LA on 30–31 Jan., 1991. The symposium was sponsored by ASTM Committee D-18 on Soil and Rock and its Subcommittees D18.06 on Physico-Chemical Properties of Soil, D18.14 on Geotechnics of Waste Management, and in cooperation with the U.S. Army Environmental Hygiene Agency. Keith B. Hodginott of the U.S. Army Environmental Hygiene Agency presided as symposium co-chairman and is the editor of the resulting publication.

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INTRODUCTION

Chemicals in our environment have become common place in today's world. As little as fifteen years ago, disposal of municipal and hazardous wastes followed the simple rule, "Out of sight, out of mind." Only when indiscriminate dumping of wastes was linked to human health did the general public and the government realize some of the detrimental effects of these waste handling procedures.

Now, waste disposal and handling has become very sophisticated and is highly regulated. However, the past practices have left the world with the problem of cleaning up for "past sins." At present, there are thousands of contaminated sites in the continental United States alone. Under the rules of the Environmental Protection Agency (EPA), each site has to be studied to determine what extent the area is affected, the amounts of chemicals humans and the ecology are being exposed to, and what type of remediation is necessary, if any. Part of this process involves calculating what health risks exist from the site if no remediation is performed. This calculation is referred to as the baseline risk assessment. The numerical value associated with this assessment forms the basis of determining the extent of any action required to clean up the site.

The purpose of this symposium on risk assessment was to collate the current modifications of the EPAs basic risk assessment methodology in a series of symposia and technical publications. We hope this type of symposium will serve both research and practical needs.

To produce this Special Technical Publication (STP), two pro-active organizations combined their talents and resources. The American Society of Testing and Materials (ASTM), through its Committee D-18 on Soil and Rock, and the United States Army Environmental Hygiene Agency cosponsored the first of a series of symposia on this type of risk assessment.

The evaluation of these risks should follow the EPAs booklet entitled, "Risk Assessment Guidance for Superfund (RAGS)." This booklet outlines the general process of risk assessment which this STP has adopted to organize the paper topics. However, this STP does not pretend to be an instructional devise for the basic EPA method. While beginners can benefit greatly from the papers presented here, this collection finds its best use in the hands of the experienced risk assessor. The papers contained in this STP present modifications of the basic EPA methodology which have been acceptable to regulators at specific sites. This should not be construed to mean that

these methods will be acceptable at all sites, in all situations, or to all regulators. Rather, it is a state-of-the-art laundry list of methods which may be helpful for complex issues at your site.

Papers in this STP were selected from the symposium submittals based upon pertinency, originality, and technical quality. All undergo peer review and most were extensively revised between presentation and publication. In this STP, papers were selected in the following categories:

- Site Characterization
- Fate and Transport
- Toxicity, Exposures, and Receptors
- Risk Characterization/Case Studies
- Establishing Cleanup Levels

In addition to the authors of the individual papers, any success of this publication reflects the contributions of many people. The Symposium Committee worked diligently in soliciting abstract submittals, in selecting promising presentations, and in chairing the sessions.

The continued support of this symposium by the officers of ASTM Committee D-18 on Soil and Rock also was vital, since time from a more than full committee meeting schedule needed to be allocated for this endeavor.

Critical to maintaining the technical quality of this STP was the diligent work of the reviewers of the technical papers. At least three reviewers were obtained for each paper to help ensure that the work reported was accurate, reproducible, and meaningful.

Considerable staff support was also required for the completion of this effort. The help of the Symposium Committee, the D-18 officers, the paper reviewers, and the ASTM staff is most appreciated. We trust that the papers in this STP, which the contributors labored hard to develop, will aid the efforts of the Environmental professional towards the reliable prediction and quantification of risk.

Keith Hoddinott
U.S. Army Environmental
Hygiene Agency
Symposium Co-Chair

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