

*Long-Lived Legacy: Managing High-Level
and Transuranic Waste at the DOE Nuclear
Weapons Complex*

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LONG-LIVED LEGACY

Managing High-Level and
Transuranic Waste at the
DOE Nuclear Weapons Complex

BACKGROUND PAPER



CONGRESS OF THE UNITED STATES
OFFICE OF TECHNOLOGY ASSESSMENT

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Foreword

This background paper is a technical annex to the main OTA report *Complex Cleanup: The Environmental Legacy of Nuclear Weapons Production*. It describes, documents, and analyzes available data about two key waste management problems at the Department of Energy Weapons Complex—those of high-level radioactive waste and transuranic waste. The paper is organized in two chapters—“Chapter 1: Managing High Level Waste” and “Chapter 2: Managing Transuranic Waste.” Each chapter contains a summary overview followed by a discussion and analysis of important areas in the waste management problem that the DOE faces at present and in its future operations.

DOE has made significant investments in waste management throughout the Weapons Complex in the past, and those investments are likely to grow in the future. The 1990 Five-Year Plan calls for almost \$20 billion in waste management expenditures (about two-thirds of the total in the plan) over the next **5 years**. Major new facilities are nearing completion and plans for additional facilities have been put forward. The challenge for DOE is to develop more effective practices for managing both current and future waste in order to avoid repeating the serious problems of the past.

In this assessment, OTA has focused on high-level and transuranic waste because these forms often pose the most risk, they are essentially unique to DOE, and the bulk of DOE’s waste management resources will be devoted to them. Large quantities of other wastes are also generated throughout the Weapons Complex (i.e., low-level radioactive waste and hazardous waste), and a comprehensive approach to all waste management must be followed by DOE. This background paper, therefore, reviews only some of the critical areas and aspects of the DOE waste problem in order to provide data and further analysis of important issues covered in the main OTA report.

As noted above, this paper is part of a broader assessment of environmental restoration and waste management at the DOE Nuclear Weapons Complex and was used to provide background material for input to the larger assessment. Information for the study was obtained from DOE and DOE contractor personnel, the Environmental Protection Agency, the National Academy of Sciences, citizens groups, academics, other independent organizations, and a variety of media. Visits to obtain information and observe practices firsthand were made to the Savannah River Site, the Hanford Reservation, West Valley, NY, the Waste Isolation Pilot Plant, Los Alamos National Laboratory, Sandia National Laboratory, the Environmental Evaluation Group, and the Idaho National Engineering Laboratory. We are grateful to all who provided information and to the reviewers who raised many valuable questions about earlier drafts.

Detailed analysis and in-depth information about the entire DOE waste management program is available largely from DOE itself. The subject is extensive and complex with long history, some of which is undocumented in the public literature. The data that are available are often in a form that is difficult to access, assemble, summarize, and interpret. While it may be useful for some agency to investigate this subject more thoroughly, OTA concluded that the analysis contained herein would be most useful for congressional policymakers at this time.


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NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this background paper. OTA assumes full responsibility for the background paper and the accuracy of its contents.

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The following persons assisted OTA in reviewing one or more drafts of this background paper for accuracy, completeness, emphasis, and presentation. Their comments and suggestions were used to modify and correct earlier drafts. This help was extremely valuable and contributed substantially to the quality of the final report.

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