

1. Record Nr.	UNINA9910958370803321
Titolo	Research and development on a salt processing alternative for high-level waste at the Savannah River Site // Committee on Radionuclide Separation Processes for High-Level Waste at the Savannah River Site, Board on Radioactive Waste Management, Board on Chemical Sciences and Technology, Division on Earth and Life Studies, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, c2001
ISBN	9786610184309 9780309183338 0309183332 9781280184307 1280184302 9780309570213 0309570212
Edizione	[1st ed.]
Descrizione fisica	1 online resource (96 p.)
Collana	The compass series
Disciplina	621.48
Soggetti	Radioactive waste disposal - South Carolina Salts
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	""Research and Development on a Salt Processing Alternative for High-level Waste at the Savannah River Site""; ""Copyright""; ""PREFACE""; ""LIST OF REVIEWERS""; ""Contents""; ""EXECUTIVE SUMMARY""; ""RESPONSE TO CHARGE 2: EVALUATE THE PROGRESS AND RESULTS OF THE RESEARCH AND DEVELOPMENT WORK THAT IS BEING UNDERTAKEN ON""; ""CHARGE 3: ASSESS WHETHER THE TECHNICAL UNCERTAINTIES HAVE BEEN SUFFICIENTLY RESOLVED TO PROCEED WITH DOWNSIZING THE LIST OF""; ""INTRODUCTION""; ""PROGRESS AND RESULTS OF DOE'S RESEARCH AND DEVELOPMENT PROGRAM""; ""SMALL TANK TETRAPHENYLBORATE PRECIPITATION"" ""2000 NRC Committee Recommendations""""Current Research and Development Results""; ""Mechanism of TPB Decomposition""; ""Waste

Foaming"; "Real Waste Tests"; "Committee Conclusions on the STTP Process"; "CRYSTALLINE SILICOTITANATE ION EXCHANGE"; "2000 NRC Committee Recommendations"; "Current Research and Development Results"; "CST Performance and CST Pretreatment Technologies"; "Chemical and Thermal Stability of Cesium-Loaded CST"; "CST Process Columns"; "Effect of Additional Titanium from CST on the DWPF"; "Discussion"; "Committee Conclusions on the CST Process"
 "CAUSTIC SIDE SOLVENT EXTRACTION"; "2000 NRC Committee Recommendations"; "Current Research and Development Results"; "CSSX Proof of Concept"; "Solvent Chemical Stability"; "Solvent Radiological Stability"; "Solvent Preparation and Commercialization"; "Discussion"; "Committee Conclusions on the CSSX Process"; "ACTINIDE AND STRONTIUM REMOVAL"; "2000 NRC Committee Recommendations"; "Current Research and Development Results"; "Actinide and Strontium Removal Requirements"; "Solid-Liquid Separation Studies"; "Alternatives to MST for Actinide and Strontium Removal"
 "Committee Comments on the MST Process"; "REFERENCES"; "APPENDIX A Letters of Request for this Study"; "APPENDIX B Interim Report"; "THE NATIONAL ACADEMIES"; "COMMITTEE ON RADIONULIDE SEPARATION PROCESSES FOR HIGH-LEVEL WASTE AT THE SAVANNAH RIVER SITE"; "Staff"; "BOARD ON RADIOACTIVE WASTE MANAGEMENT"; "Staff"; "BOARD ON CHEMICAL SCIENCES AND TECHNOLOGY"; "Staff"; "ACKNOWLEDGEMENT OF REVIEWERS"; "CONTENTS"; "SUMMARY"; "INTRODUCTION"; "BACKGROUND"; "DOE SELECTION CRITERIA AND GOALS"; "COMMENTS ON CRITERIA"; "FINDINGS AND RECOMMENDATIONS"
 "REFERENCES CITED"; "APPENDIX A BIOGRAPHICAL SKETCHES OF COMMITTEE MEMBERS"; "APPENDIX B LETTERS OF REQUEST FOR THIS STUDY"; "APPENDIX C HIGH-LEVEL WASTE AT THE SAVANNAH RIVER SITE"; "TANK WASTE PROCESSING"; "Waste Concentration and Storage"; "Radionuclide Immobilization"; "Extended Sludge Processing"; "Salt Processing"; "Salt Disposal"; "CESIUM REMOVAL PROBLEM"; "Strontium/Actinide Removal by MST"; "Tetraphenylborate Precipitation Process"; "Crystalline Silicotitanate Ion Exchange"; "Caustic Side Solvent Extraction"; "Direct Disposal in Grout"
 "APPENDIX C Biographical Sketches of Committee Members"

Sommario/riassunto

The U.S. Department of Energy (DOE) is nearing a decision on how to process 30 million gallons of high-level radioactive waste salt solutions at the Savannah River Site in South Carolina to remove strontium, actinides, and cesium for immobilization in glass and eventual shipment to a geologic repository. The department is sponsoring research and development (R&D) work on four alternative processes and plans to use the results to make a downselection decision in a June 2001 time frame. The DOE requested that the National Research Council help inform this decision by addressing the following charge:

1. evaluate the adequacy of the criteria that will be used by the department to select from among the candidate processes under consideration;
2. evaluate the progress and results of the research and development work that is being undertaken on these candidate processes; and
3. assess whether the technical uncertainties have been sufficiently resolved to proceed with downsizing the list of candidate processes.

Responses to the last two points are provided in this report. Research and Development on a Salt Processing Alternative for High-Level Waste at the Savannah River Site focuses exclusively on the technical issues related to the candidate processes for radionuclide

removal from high-level waste salt solutions at SRS. The committee's interim report served as a response to the first point of this charge, and may be read in Appendix B. In that report, the committee found that DOE's proposed criteria are an acceptable basis for selecting among the candidate processes under consideration, but that the criteria should not be implemented in a way that relies on a single numerical "total score."
