

YUCCA
MOUNTAIN
PROJECT



Studles

Summary and Discussion

Presented to
NWTRB
Panel on Performance Assessment: TSPA-VA
Albuquerque, New Mexico

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April 24, 1998

Review of Results - Dose Values

- 10,000 yrs
 - 5% - 0 mrem/yr
 - “expected value” - 0.04 mrem/yr
 - 95% - 0.85 mrem/yr
- 100,000 yrs
 - 5% - 0 mrem/yr
 - “expected value” - 5.3 mrem/yr
 - 95% - 210 mrem/yr
- 1,000,000 yrs
 - 5% - 0.071 mrem/yr
 - “expected value” - 300 mrem/yr
 - 95% - 1000 mrem/yr

Review of Results - Uncertainty Analyses

The five most sensitive parameters in all of the regression analyses (10,000, 100,000, and 1,000,000 year runs):

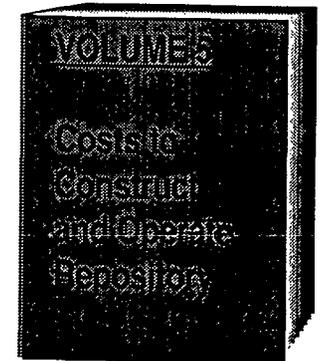
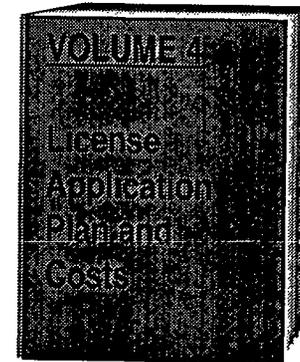
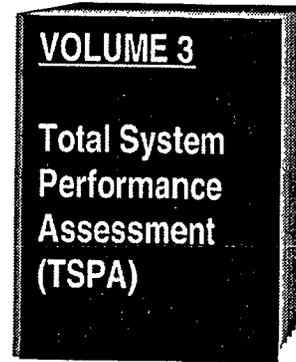
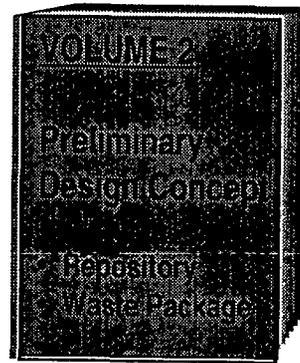
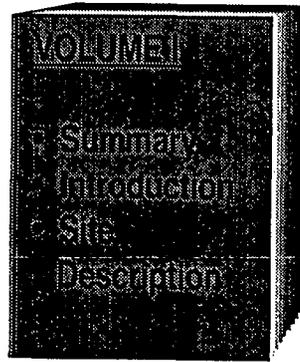
- seepage fraction
- CRM corrosion rate
- number of juvenile failures
- saturated zone dilution
- percolation flux

Remaining Activities

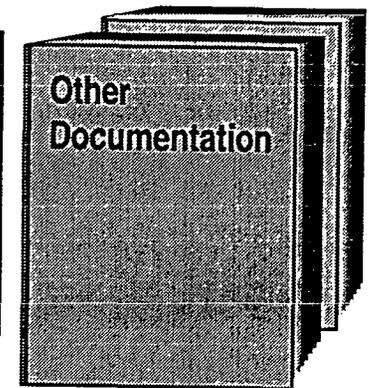
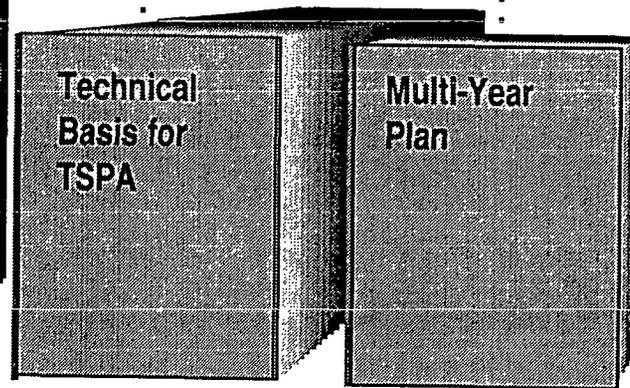
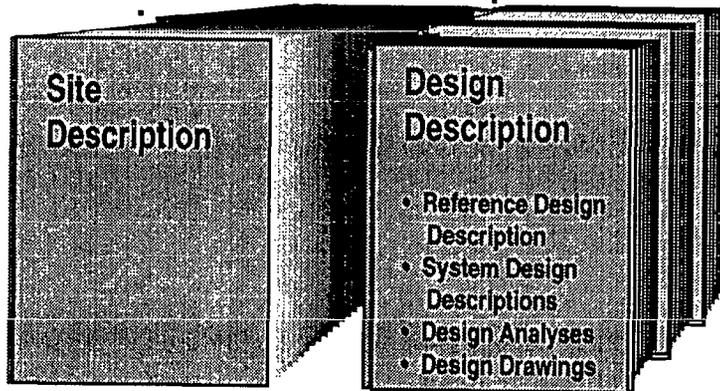
- Complete TSPA-VA documentation for internal review.
 - Respond to review comments and revise Chapter 3 of the VA document.
 - Ensure consistency with LA Plan portion of VA.
- Complete documentation of individual components for Technical Bases Report.
 - Respond to review comments and revise TBR
- Initiate review of the TSPA-VA with the PA Peer Review Panel.
- Develop a plan to address QA issues.
- Work on modifying TSPA-VA documentation for public forums.
- Begin planning for LA abstraction/testing activities.

PROGRAM DOCUMENTATION

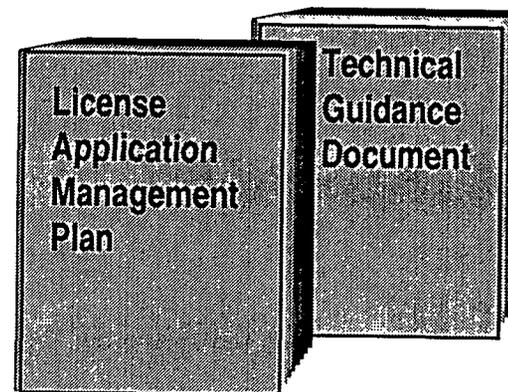
VA
PRODUCT



TECHNICAL
DOCUMENTS



LA
MANAGEMENT
DOCUMENTS



Outline of TSPA-VA Volume

Overview

1. Introduction/objectives
2. Approach/methodology
 - definition of base case
3. Results
 - base case deterministic (single point estimate) analyses
 - uncertainty analyses of base case
 - sensitivity analyses
 - alternative models
 - disruptive features, events and processes
 - design options

Outline of TSPA-VA Volume (continued)

4. Component models of TSPA

- unsaturated zone flow
- thermal hydrology
- near-field geochemical environment
- waste package degradation
- waste form alteration
- radionuclide mobilization and EBS transport
- unsaturated zone transport
- saturated zone flow and transport
- biosphere
- disruptive features, events and processes

5. Summary and Discussion

- information needs for TSPA-LA

Outline of TSPA-VA Technical Basis Report

1.0 TSPA-VA Introduction

2.0 - 11.0

x.1 Component* Introduction

(Overview, Previous TSPA Modeling, Synopsis of Current Approach, Chapter Organization, Data Quality and Traceability)

x.2 Component Characterization

x.2.1 Description of the Component System

x.2.2 Site Characterization Models

x.2.3 Conceptual Models

(Issues from Abstraction/Testing Workshops, Expert Elicitation, Base-Case Conceptual Model, Alternative Conceptual Models)

x.3 Analysis Approach for TSPA Analyses

* *components are UZ Flow, Thermal hydrology, Near-Field Geochemical Environment, Waste Package Degradation, Waste Form Alteration, Radionuclide Mobilization and EBS Transport, UZ Transport, SZ Transport, Biosphere, and Disruptive FEPs)*

Outline of TSPA-VA Technical Basis Report (continued)

x.4 Component Base Case

x.4.1 Description of the Base Case

x.4.2 Development of Parameter Distributions and Uncertainty

x.4.3 Analyses

x.4.4 Results

x.4.5 Interpretation

x.4.6 Guidance for Sensitivity Studies

x.5 Sensitivity Studies

x.6 Summary and Recommendations

(Summary of Methods and Results, Implications for Repository Performance, Guidance for License Application)

x.7 References

12.0 Synthesis of Abstracted Models into the TSPA Model

13.0 Summary of Additional Model Development, Testing, Abstraction and Documentation Required for TSPA-LA

Work Underway to Implement a QA Program for PA

- A plan has been initiated to allow for a phased approach to implementing a QA program for PA.
- The documentation of requirements that will govern QA for PA activities has completed formal review.
- Two “vertical slice” reviews have been completed to identify weaknesses and gaps in the traceability and transparency of PA documentation.
 - a “lessons learned” meeting was held in April to brief to the PA team on the findings of the reviews.
- Software qualification and configuration management activities have been initiated and several PA codes have been placed under configuration management.
- Documentation of the current TSPA QA implementation effort will be completed in summer 1998.

How Well Did We Address the Questions to be Asked of TSPA-VA?

Is the TSPA an effective tool for assessing the safety of the potential repository system?

Does the TSPA generate confidence?

How well did we do in our presentations in conveying our assumptions, information, and results?

What specific suggestions does the Board have for improving the TSPA process and presentation?