

THE AEROSPACE CORPORATION



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4810-01.84.kws.30  
August 17, 1984

WM <sup>RES</sup>  
Record File  
A4165  
Aerospace

WM Project 10, 11, 16  
Docket No. \_\_\_\_\_  
PDR 1  
LPDR 1 (B, N, S)

Mr. Kien C. Chang  
MAIL STOP 623-SS  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Distribution: \_\_\_\_\_  
K Chang  
(Return to WM, 623-SS) \_\_\_\_\_

Dear Mr. Chang:

DRAFT FINAL REPORT: "THE ROLE OF FAULT TREES AND  
EVENT TREES IN DEPICTING FAILURE OF A HIGH-LEVEL  
RADIOACTIVE WASTE PACKAGE IN A BASALT REPOSITORY"

Enclosed are 10 copies of the subject report. This report combines the subjects of fault trees and event trees that were presented separately in draft form during December 1983 and January 1984, respectively. In preparing this draft, particular attention was given to new information that has become available, and to comments given by BCL, BNL, DOE, ORNL, SNL, and the NRC staff regarding the previous fault and event tree reports.

The subject report takes the position that the fault trees and event trees provide effective tools in the qualitative analysis of waste package performance. The trees are useful for displaying the scenarios, and failure modes, irrespective of the likelihood of occurrence. However, there are difficulties that rule out use of fault tree and event tree techniques for quantitative analysis of waste package reliability. Mathematical considerations and example calculations are presented to substantiate this finding.

Please call me if you have any questions.

Very truly yours,

*Kenneth W. Stephens*

Kenneth W. Stephens  
Manager, Technology Assessments  
Eastern Technical Division

KWS:tah  
Enclosures (10 copies)

cc: G.E. Aichinger, SD/PMR .

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