



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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MEMORANDUM FOR: Kien Chang, WMHL, NMSS
FROM: Michael McNeil, WM, RES
SUBJECT: "PREPARATION OF ENGINEERING ANALYSIS . . .," AEROSPACE
CORPORATION CONTRACT, FIN A-4165-4

I have reviewed the November progress report on the subject contract and find that it does little to affect my unease about the potential use of this program.

It is my understanding that fault tree analyses can be adapted for extremely complex processes such as radionuclide release from waste packages. This involves, as you know, not only interaction of failure modes but also issues of partial failure, of time dependence, and of statistics. For example, the dependence of the depth of the deepest pit for a set of canisters, each of given surface area, at fixed time, on the number of canisters in the set can be expressed by either of two different functions depending on the assumptions made in the analysis of the individual pits. This is assuming that there is no interaction between pits; at present, the consequences of pit interaction, and of texture, are completely unexplored. What I have seen of the Aerospace work does not reflect clearly their understanding of these complexities, which are especially important when one considers that we must project results far beyond our basis of deliberate experiments and that archaeological data will require very careful analysis because of differences and uncertainties in groundwater chemistry.

Michael McNeil

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WM Record File

A-4165-5

WM Project 10, 11, 16

Docket No. ✓

PDR ✓

LPDR ✓

Distribution:

K Chang

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