



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

MAR 18 1987

MEMORANDUM FOR: Tom Jungling, WMEG, WM, NMSS
FROM: Michael McNeil, WMB, DES, RES
SUBJECT: RADIOLYTIC EFFECTS ON CORROSION OF COPPER ALLOYS

Enclosed is a recent report from Westinghouse Hanford on the corrosion of copper, copper-7% aluminum, and copper-30% nickel, under gamma irradiation, in a groundwater relevant to the tuff repository.

The data reported on indicate that while the uniform corrosion rate of pure copper is generally higher, the pure copper is much less susceptible to localized corrosion and the effects associated with dealloying. These observations are not unexpected, but they may encourage DOE/NNWSI, if they wish to consider copper alloy materials for the overpacks, to accept the fact that the uncertainties in corrosion analysis are probably significantly less for pure copper than for copper alloys. The disadvantage of pure copper, its lack of mechanical strength, can be compensated for by using it in combination with another metal (e.g., steel).

McNeil
Michael McNeil
Waste Management Branch, DES, RES

Enclosure: As stated

cc: Paul Shewmon
S. J. S. Parry

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