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MEMORANDUM 29 December 2000

To: Yucca Mountain File, Nye Co. N.W.R.P.O.
From: Don L. Shettel
Subject: Review of AMR/PMR: ANL-EBS-MD-000041 Rev 00.

Title: In Drift Corrosion Products.

The main points of discussion are listed below:

1. Only metallic elements with final summed abundances (over all components of the EBS) greater than 1% are considered for modeling. Items such a electrical wiring and lighting are not considered because of abundance limits. This limit is too high given the State of Nevada's recent hypothesis that trace elements such as Pb, Hg, and As may have a deleterious effect on the life expectancy of canister metal alloy C22.

2. Eh-pH diagrams from Brookins (1988) are used to conceptually illustrate the chemistry of the metallic elements considered. This seems somewhat out of date as there are more recent software programs that can generate these diagrams at higher temperatures and with the appropriate thermochemical database (EQ3nr/6).

3. There is a discussion within this document of mineral reactions/alterations that will occur in the refluxing zone in the wall rock. Precipitation of phases at the boiling zone is mentioned as dissolution (porosity development) in the steam condensation region. It is also stated that this will have an effect on hydrogeological modeling parameters porosity and permeability over time. This is amazing when one considers that if these phenomena are pointed out or suggested at a public meeting one only receives back a blank stare and no acknowledgement.

4. Since this is a conceptual model document, later documents that employ the models actually used will need to be reviewed.