

28 November 1979

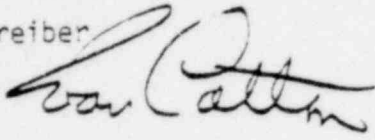
ADVISORY COMMITTEE
REACTOR SAFETY

CT-1196

TO: G. Quittschreiber

DEC 03 1979

FROM: Ivan Catton



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SUBJ: Floating Nuclear Plant Subcommittee Meeting, 17 November 1979,
Los Angeles

The applicant and the staff have made significant improvements in their analysis of the molten core ladle. Based on their analysis, it is my opinion that the two days to penetration is a conservative estimate. I do share, however, Dr. Okrent's interest in how the two day requirement came into existence.

The model of the ladle is oversimplified. The use of several large nodes to represent surfaces above the pool could lead to underpredictions of brick temperatures nearer to the pool surface and over predictions further away. Certain complex heat transfer mechanisms in the pool need more attention. In particular, how the pool freezes and remelts could be better described using present knowledge.

Water in the ladle before and during the period when a molten pool exists needs to be considered to be sure steam explosion potential is properly factored into the design. In that steam degrades MgO bricks, an estimate of how much exposure is to be expected should be made.

MgO is not the only refractory available. A large number were considered for use with CRBR. I would like to see a review of this work and reasons for the selection of MgO over other materials.

Studies are underway at SANDIA to determine what happens to MgO bricks when they are exposed to molten UO₂. Rumors of interesting results are heard yet SANDIA had no comment at the subcommittee meeting. If research results cannot be made available to the ACRS subcommittee on FNP or the staff in a timely manner then their utility is questionable.

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