January 21, 19[illegible]

AEOD/E701

MEMORANDUM FOR: Stuart Rubin, Chief
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

THRU: Peter Lam, Chief
Reactor Systems Section 2
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

FROM: Sanford Israel, Senior Reactor Systems Engineer
Reactor Systems Section 2
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

SUBJECT: POTENTIAL CONTAINMENT AIRLOCK WINDOW FAILURE DUE TO RADIATION

Enclosed for your consideration is an engineering evaluation report on the above subject which was identified at the D.C. Cook plant. A vendor report noted that samples of glass used in airlock windows shattered in a beta radiation test. The D.C. Cook plant has two airlocks in each unit. The licensee decided to install a 3/8-inch thick cover plate over the inner airlock windows inspite of the uncertainty in the applicability of the test results to potential events at his plant.

Our limited investigation noted that airlock windows are used at other plants and that failure of the windows could compromise containment integrity following design basis accidents or severe core damage accidents. We found that the beta dose rates used in the tests were significantly higher than those anticipated for LOCAs or core-melt events. However, because the precise failure mechanism remains unknown, there is uncertainty that the windows would maintain their integrity at the lower dose rates. Therefore, we suggest that the acceptability of airlock windows with respect to design basis accidents be rereviewed by NRR.

Our review also noted some degradation in fracture strength for windows receiving a high integrated gamma dose. Even though this degradation does not reduce the glass window capability to below containment design pressures,

50-315
50-316

it may adversely affect the window pressure capability during severe core damage accident scenarios. Therefore, we suggest that the airlock windows be reviewed as part of the Severe Accident Program.

Original signed by

Sanford Israel, Sr. Reactor Systems Engineer
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

Enclosure:
As stated

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