82-737-000

Westinghouse Electric Corporation
Water Reactor Divisions
Box 355
Pittsburgh Pennsylvania 15230

NS-EPR-2682

November 12, 1982

Mr. Edward L. Jordan, Director
Division of Engineering and Quality Assurance
Office of Inspection and Enforcement
East West/West Towers Building
4350 East West Highway
Bethesda, MD 20014

Dear Mr. Jordan:

One open item remaining from our September 27, 1982 meeting on the failure of guide tube support pins concerned the verification of gap distances between the bottom of the guide tube and the upper core plate.

The gap between the bottom of the control rod guide tube flange and the top of the upper core plate during hot at-power conditions has been investigated. In combination with this, the control rod guide tube support pin shank engagement in the guide tube bottom flange and the support pin leaf engagement in the upper core plate have been verified. If a failure occurs in the shank of the control rod guide tube support pin, the shank section of the support pin remains engaged in the guide tube bottom flange. If a failure occurs in the leaf portion of the control rod guide tube support pin and both leaves are gone, the remaining section of the leaf remains engaged in the upper core plate.

The most limiting and, therefore, enveloping case for all Westinghouse PWR's is the 15 x 15 - 150 inch style guide tube. The gap between the bottom of the guide tube and the upper core plate at cold conditions with no fuel in the core is 0.170 in (maximum). The minimum leaf engagement at cold conditions with the upper core plate is 0.109 in. These values represent the worst case tolerance stackup for gap size and leaf engagement. The following operating and design conditions were investigated with regard to either opening or closing the gap; adding fuel to the core, thermal growth of the core plate, operating pressure, deadweight and bouyancy of the core plate, and OBE seismic conditions. The net effect of these loads is that the gap between the bottom of the guide tube and the top of the upper core plate increases by 0.028 in. for a total gap of 0.198 in. The minimum support pin flange thickness for the 15 x 15 - 150 in. guide tube is 0.225 in. Therefore, the minimum shank engagement for normal plus upset conditions is 0.027 in. The minimum engagement between the leaf section and the upper core plate caused by the above loads is 0.081 in.



IE 19

This investigation reaffirms the Westinghouse position that no safety concern exists with respect to the failure of guide tube support pins and therefore Westinghouse finds no reason to alter the conclusions or recommendations presented at the September 27, 1982 meeting.

Very truly yours,

E. P. Rahe, Jr., Manager
Nuclear Safety Department

JSG/keg