

ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2
INADEQUATE LOWER REACTOR VESSEL INSULATION SUPPORT
NCR CEB 79-20
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

As a result of TVA review of NRC-OIE Information Notice No. 79-11, "Lower Reactor Vessel Head Insulation Support Problem," a problem was identified where the lower reactor vessel insulation system at Sequoyah, as presently designed and supported, is not adequate to prevent loading of the incore instrument guide tubes during a seismic event.

Safety Implication Statement

Had the deficiency gone uncorrected, the potential would exist during an OBE or SSE for the insulation to impact the incore instrument guide tubes in such a manner as to cause deformation or breakage of a guide tube. If a deformation occurred without breakage, the incore instruments through that guide tube could become inoperative. However, the incore instrumentation is nonsafety-related, and its loss would not affect plant safety. If breakage of the guide tube occurred, this would result in a violation of the reactor coolant pressure boundary and, consequentially, a LOCA. This could adversely affect the safe operation of the plant.

Corrective Action

TVA has designed a restraint system to prevent excessive movement of the insulation during a seismic event. Other normal movements such as thermal growth and dynamic vessel movement have been accounted for in this design.

The design consists of a bumper restraint arrangement which is attached to four of the lower head support spokes. These spokes are radial members of the lower head mirror insulation support frame. One of the bumper restraints will be attached to the spoke on the zero azimuth. The remainder are spaced equally around the frame on the spoke centerlines. This arrangement will ensure that all horizontal forces which would be induced by a seismic event will be transmitted through the support frame members and into the concrete reactor cavity walls such that no loading will be transmitted onto the incore instrumentation guide tubes. Similar problems have been identified for the Watts Bar (CEB 79-21) and Bellefonte (MEB. 1009) Nuclear Plants. Yellow Creek design has not advanced to this stage at this time. The problem is applicable to PWR's only.

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