Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000

June 17, 1983
LIC-83-146

Mr. Robert A. Clark, Chief
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Division of Licensing
Operating Reactors Branch No. 3
Washington, D.C. 20555

Reference: Docket No. 50-285

Dear Mr. Clark:

Thermal Shield Concerns
for Fort Calhoun Station

At Omaha Public Power District's request, C-E Power Systems has completed an analysis of the effects of a dropped thermal shield in the Fort Calhoun Station reactor. The results of that analysis, as requested by the Commission's letter dated June 1, 1983, are attached. Please note the results of this analysis do not differ significantly from the preliminary assessment of the Commission's safety evaluation which accompanied the above referenced letter.

Sincerely,

W C Jones

W. C. Jones
Division Manager
Production Operations

WCJ/TLP:jmm

Attachment

cc: LeBoeuf, Lamb, Leiby & MacRae
1333 New Hampshire Avenue, N.W.
Washington, D.C. 20036

Mr. E. G. Tourigny, Project Manager
Mr. L. A. Yandell, Senior Resident
Inspector

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Attachment

REPORT ON EVALUATION OF A DROPPED THERMAL SHIELD AT THE FORT CALHOUN STATION

The District has received a report from Combustion Engineering (C-E Report CEN-249(0)) detailing the results of an evaluation of the mechanical and hydraulic effects of a dropped thermal shield at the Fort Calhoun Station. This evaluation was referenced in the District's submittal dated April 26, 1983. The conclusions of the report are summarized below.

The evaluation demonstrated that if the thermal shield were to become detached from its supports and drop from its normal position, it could move downward only 1-15/16 inches before contacting the core support barrel snubber spacer blocks. The impact stresses on the snubber spacer blocks as a result of such a drop would be well within allowable stresses for normal operation. Failure of the spacer blocks, resulting in a further drop to the core stops, is extremely unlikely.

The evaluation also showed that if the thermal shield drops to the snubber blocks in an upright position, the impacts on core inlet flow distribution and system flow rate are negligible. This result applies regardless of the degree of eccentricity of the thermal shield in its dropped position. If the thermal shield were to drop to a fully eccentric and tilted position, there could be a total reduction in the inlet flow rate to the limiting fuel assembly of 14%. On a conservative basis, this flow reduction could result in a reduction in overpower margin of 14%. The present overpower margin available to mitigate Anticipated Operational Occurrences is 17%. This is sufficient to offset the impact of the flow reduction resulting from the thermal shield dropping to a fully eccentric and tilted position, without violating the core minimum DNBR limit.

This evaluation has demonstrated that the mechanical and hydraulic effects of a dropped thermal shield would not compromise the safety of the Fort Calhoun Station.