FEB 0 1 1978

50-269

MEMORANDUM FOR: D. Eisenhut, Assistant Director for Operational Technology, DOR

FROM: L. C. Shao, Chief, Engineering Branch, DOR

SUBJECT: OCONEE UNIT 2 STEAM GENERATOR LEAK

On October 7, 1977 Oconee Unit 2 was shut down to locate a 0.2 GPM tube leak in steam generator B. The subsequent investigation failed to locate the leak and the unit was returned to 70% power on October 27, 1977. After returning to power operation, the leak developed again at a stable rate of 0.08 GPM until November 3, 1977 when the leak rate increased to 0.65 GPM during an attempt to increase power. The unit was again shut down and a second unsuccessful inspection for the leak was made. On November 11, 1977 the unit returned to power and operated at reduced power until December 28, 1977 when it was shut down to repair a failed stator in a control rod drive. On January 10, 1978 it was reported that the source of the leak was discovered to be a crack in lane tube C77-T25. The crack was inspected using fiber optics and was described by the licensee as a 90° circumferential crack located at the upper tube sheet. The tube was plugged and the unit returned to power. There is currently no detectable leakage in the unit.

A similar occurrence in July 1977 involved tube C77-T2 in steam generator 3-B. This tube was also a lane tube which showed a 60° to 90° circumferential crack. Although this crack had not propagated fully around the tube in a short time as was the case in other lane tubes it was felt that this was a phenomenon affecting only peripheral tubes where lower cross flow velocities supplied less kinetic energy for crack propagation.

The recently plugged tube, C77-T25; however, is not a peripheral tube but is located near the middle of the open tube lane in an area of higher cross flow velocity. However, since the unit was operating at reduced power levels (less than 70%) the flow velocity and in turn the energy available to drive the crack was substantially decreased. Therefore the crack would tend to stabilize at reduced power levels. We believe that this recent event is consistent with past experience for lane tubes and is not a new phenomenon. Furthermore, close monitoring of the leakage rate in conformance with the

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NRC FORM 318 (9-76) NRCM 0240 ☆ U. S. GOVERNMENT PRINTING OFFICE: 1976 — 626-624

technical specifications will continue to ensure safe operation of the unit.

L. C. Shao, Chief,
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