

**Florida
Power**
CORPORATION

Crystal River Unit 3
Decker No. 60-302

November 30, 1994
3F1194-10

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Subject: Preliminary Results of Refuel 9 OTSG Tube Pull

References: A. NRC to FPC letter, 3N0494-21, dated April 26, 1994
B. FPC to NRC letter, 3F0494-09, dated April 19, 1994

Dear Sir:

Florida Power Corporation (FPC) is hereby submitting preliminary results of the Refuel 9 Once Through Steam Generators (OTSGs) Tube Pull. Confirmatory Action Letter (CAL) Item No. 8 (Reference A) confirmed FPC's commitment to provide such results by November 30, 1994. FPC will provide the final report by May 31, 1995. FPC intends to use the final report as the basis for a license amendment.

The attached preliminary report provides information on destructive and non-destructive (NDE) examinations performed on sections of OTSG tube samples pulled during Refuel 9 (Spring 1994). The examinations performed include field and laboratory NDE as well as destructive examinations. However, the detailed analysis of the NDE examination results to the metallography results for determining probabilities of detection and accuracy in sizing will be provided in the final report (this detailed analysis will be performed as a B&W Owners Group Project). The attached report also discusses the observed tube degradation morphologies and their structural and leakage integrity implications.

Two forms of degradation were observed in the pulled tubes, pit-like intergranular attack (IGA) in the lower tubesheet crevice and in the first span (6-18 inches above the lower tubesheet secondary face as observed in the 1992 pulled tubes) and mechanical wear at the tube support plate land contact areas.

FPC has performed preliminary evaluations of the NDE detection performance, the causes, structural integrity and leakage implications of the intergranular

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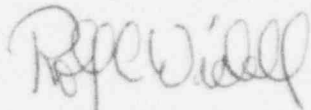
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degradation observed as the result of the tube pulled examinations. FPC has concluded the degradation morphologies observed are consistent with those found during the 1992 tube pull project. Furthermore, such intergranular degradation is enveloped by previous evaluations regarding likely causes as well as structural and leakage evaluations (Reference B). Particularly, burst pressures obtained during the 1992 tube pull were compared to the burst pressures obtained in 1994. Those burst pressures (from best estimates of burst pressures of tubes tested in 1992 as well as from those tubes burst tested in 1994) are well above the Regulatory Guide 1.121 of three times the operating differential pressure (3×1350 psid).

Based on a recently performed study of wear in OTSGs, and preliminary comparisons of historical eddy current inspection data, FPC also concludes that the growth of wear degradation observed at tube support plates is either non-existent or slow and easily monitored. The wear marks have no significant affect on burst pressure.

FPC believes the tube pull effort has greatly increased our knowledge of the condition of our steam generators. The results of this investigation support our conclusion that there are no degradation mechanisms which could impact the long term operation or safety of our steam generators.

Sincerely,



Rolf G. Widell, Director
Nuclear Operations Site Support

RCW:LVC
Attachment

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager