Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

March 3, 2003

L-2003-041
10 CFR 50.4
10 CFR 50.55a

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

Re: St. Lucie Unit 2
Docket No. 50-389
In-Service-Inspection Plan
Second Ten-Year Interval
Interim Relief Request 34 Supplement

By letter L-2002-245 dated December 10, 2002 and pursuant to 10 CFR 50.55a(g)(5)(iii), Florida Power and Light Company (FPL) requested approval of Interim Relief Request 34, *Temporary Non-Code Repairs of ICW Class 3 Piping*. The piping is on the 2A and 2B intake cooling water (ICW) pump discharge headers. During a conference call that was held on February 4, 2003, FPL and the NRC discussed the NRC requested clarification of the Generic Letter (GL) 90-05 evaluation submitted by FPL in support of the requested relief.

FPL was requested to supplement the relief request to discuss the effects the temporary repair will have on flooding, spraying water on equipment, loss of flow, or design loading (i.e., deadweight, pressure, thermal expansion, and seismic loads) on each of the topics identified above to comply with the requirements specified in Generic Letter 90-05, Section B.3.

The attached information supplements the GL 90-05 engineering disposition of the non-Code repair of ASME Class 3 ICW system piping lines I-30"-CW-11 & I-36"-CW-16 that was attached to the original relief request.

Please contact George Madden at 772-467-7155 if there are any questions about this submittal.

Very truly yours,

Donald E. Jernigan
Vice President
St. Lucie Plant

Attachment

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Supplement to Relief Request Number 34 Attachment

NRC Requested Clarification:

Discuss the effects the temporary repair will have on flooding, spraying water on equipment, loss of flow, or design loading (i.e., deadweight, pressure, thermal expansion and seismic loads) on each of the topics identified above to comply with the requirements specified in Generic Letter 90-05, Section B.3.

FPL Response:

In review, the flaws identified did not have any measurable leakage, but after sandblasting the worst area had an approximate 1 drop/minute leak rate.

The locations where the housekeeping patches are installed are near the intake well inside a trench/pit, hence flooding and spraying of water on equipment is not a concern. Any leakage would flow into the intake well and the locations of the piping and the flaws on the piping are such that any spray would not effect any equipment, including the ICW pumps. This is true with or without the patches installed.

ICW inventory losses have been included in the system model, which included the following assumptions; 1) rupture of a ¾ inch instrument line concurrent with 2) another opening from which 100 gpm is lost. The internal diameter of ¾ inch pipe is approximately 0.824 inches and bounds the identified areas in this relief request. ICW inventory losses, should they occur, will be within acceptable limits.

The design loading for lines CW-11 and CW-16 was evaluated within specific engineering calculations using the GL 90-05 "Through-Wall Flaw" approach. This approach assumes a through-wall flaw and evaluates the flaw stability by the linear elastic fracture mechanics methodology. These calculations included deadweight, pressure, thermal expansion, and seismic loads. The calculations determined a stress intensity factor, K, of 21.6 ksi $(in)^{0.5}$ for line CW-11 and a K value of 12.13 ksi $(in)^{0.5}$ for line CW-16, both of which are significantly below the K allowed for ferritic steel of 35 $ksi(in)^{0.5}$. These two calculations concluded that the flaws are acceptably sized with respect to GL 90-05 criteria provided in Section 3.a., "Through-Wall Flaw" Approach.

There was also indication of several areas on the underside of the subject piping which demonstrated wall thickness with less than 0.375 inches nominal wall. A review of stress margins in the stress analysis of record and functionality allowable values for carbon steel piping concluded that these thinned areas are acceptable. In addition, since the thinning is relatively uniform circumferentially about the pipe, the overall effect of the pipe stress at this location is judged to not significantly effect the stresses at the through wall flaws. Accordingly, the stress intensification factor indicated above will not deviate significantly; and with the ample margin indicated, is considered acceptable.

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The following information was summarized on pages 3 and 4 of the relief request.

The proposed temporary leak mitigating devices are judged to be of minimal mass (less than 10 lbs. total) which is considered insignificant compared to the overall mass of the piping system and components. Therefore, the additional weight added by the devices results in no negative impact on the structural design of the piping.

Therefore, the temporary repair does not affect the design loading of the piping. The temporary repair consists of epoxy sealant covered by stainless steel sheet metal with stainless steel banding. This information was summarized on page 5 of the relief request which states in part that the repair has "...no structural significance beyond that necessary to resist the hydraulic pressure of the leak."