



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

December 16, 1992

Docket No. 50-302

Mr. Percy M. Beard, Jr.  
Senior Vice President,  
Nuclear Operations  
Florida Power Corporation  
ATTN: Manager, Nuclear Operations  
Licensing  
P.O. Box 219-NA-21  
Crystal River, FL 32629

Dear Mr. Beard:

SUBJECT: CRYSTAL RIVER UNIT 3 INTERMEDIATE BUILDING HIGH ENERGY  
LINE BREAK (TAC NO. M82173)

During implementation of your high energy line break (HELB) program at Crystal River Unit 3 (CR-3), you identified a postulated HELB in the Intermediate Building that could result in temperatures in excess of the environmental qualification limits specified for certain emergency feedwater initiation and control (EFIC) system electrical components. You met with us on December 4, 1991, to present your plan to address this concern. Your letter dated April 21, 1992, provided the results of the evaluation and conclusions with respect to this postulated high energy pipe break. During our review of your April 21, 1992, letter, we had identified several concerns which we discussed with your representatives on July 21, 1992. You responded to those concerns by letter of August 8, 1992.

The break of concern is a postulated terminal end break in the 6-inch emergency feedwater pump turbine steam supply lines at their connection to the 24-inch main steam line. These are steam supply lines attached to 6-inch weldolets at the main steam line which are directly welded to 6-inch by 3-inch reducers at the inlet to valves MSV-55 and MSV-56. The guidelines for selection of location for terminal end breaks would require postulation of a break at the 6-inch weldolet.

According to your evaluation, a break in the weld on the 3-inch end of the reducer does not produce an unacceptable environmental temperature, whereas a break in the 6-inch end of the reducer or the weldolet does. You argue that, for a given load or bending moment on the supply line, the stresses on the 3-inch end weld are much greater than the stresses in the 6-inch end weld, the weldolet, or the connection of the weldolet to the 24-inch line. You also

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satisfactorily addressed our concerns about thermal stresses in the piping components. On this basis, you conclude that the greatest potential for a postulated terminal end pipe rupture occurs in the 3-inch end of the reducer, for which break the electrical components of concern would be qualified.

We had also questioned whether additional examinations and fracture mechanics analyses are necessary to support your conclusion. Based on the additional information presented in your letter of August 8, 1992, we agree that fracture mechanics analyses are not necessary. However, we feel that additional examinations are necessary to support your postulation of the break at the 3-inch end of the reducer. Your argument for selecting the break location at the 3-inch end of the reducer hinges on that location having the highest stresses and thus having the greatest potential for a pipe break. The evaluation of the stresses assumes that no flaws exist at the weld joints. We recommend that this be confirmed by both surface and volumetric NDE of the weldolet to main steam header and weldolet to the 6-inch end of the reducer welds. If the NDE examination of these weld joints shows no indications requiring acceptance by ASME Section XI analysis, then we would agree with your conclusion that the 3-inch end of the reducer has the greatest potential for a terminal end pipe break.

On the basis of the review of the submittals discussed above, we conclude that, pending acceptable results of the NDE examinations of the weld joints discussed above, the postulation of the terminal end break location at the 3-inch end of the reducer on the emergency feedwater pump steam supply lines is acceptable.

Since there does not appear to be any immediate safety concern, and the NDE examination would have to be performed with the plant shut down, this examination may be performed at the next appropriate scheduled plant outage. Please notify us of the schedule for this effort within 60 days and the results of the examination.

This requirement affects fewer than 10 respondents and, therefore, is not subject to Office of Management and Budget review under P.L. 96-511.

Sincerely,

(Original Signed By)

Harley Silver, Senior Project Manager  
Project Directorate II-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

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Memorandum Dated December 16, 1992

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