



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

January 23, 1991

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, Florida 32629

Dear Mr. Beard:

SUBJECT: CRYSTAL RIVER UNIT 3 - SIGNIFICANT CHANGES IN LOCA ANALYSIS
(TAC NO. 77811)

The NRC staff has received your letters of April 18, 1990 and October 4, 1990, describing significant changes (as defined by 10 CFR 50.46) in loss of coolant accident (LOCA) analysis calculated peak cladding temperature. The staff was also informed of this issue by the B&W Nuclear Service Company (B&W) by letters dated March 19, 1990 and August 23, 1990. A summary of this issue, based on the above submittals and discussions with B&W, is as follows.

A B&W reanalysis of LOCA limits of the 177 fuel assembly lowered-loop plants using the previously acceptable linear heat rate (LHR) of 16.5 KW/ft at the 6-foot elevation resulted in a peak cladding temperature (PCT) of 2194°F. The reanalysis was performed with the approved FLECSSET code and BWC critical heat flux (CHF) correlation in the evaluation model. The BWC correlation was used because the original BAW-2 CHF correlation had been used outside its range of applicability. While the result meets the acceptance criterion specified in 10 CFR 50.46, it represents an increase of more than 50°F vs. the original analysis. This raised concern about the acceptability of the LOCA limits at other core elevations. B&W indicated the previously accepted LHR for the 4-foot elevation might be affected and an evaluation was under way to determine the effect. However, since the analysis was performed with a reference power level of 2772 MWt, which is almost 8 percent higher than the licensed power level of 2544 MWt for Crystal River Unit No. 3, there was margin to justify continued operation. The staff was kept informed of the analysis by B&W.

Further B&W analysis for the 4-foot elevation at the previously accepted LHR of 16.1 KW/ft yielded a PCT of 2160°F. Since the analysis results using the existing LHR limits are within the 10 CFR 50.46 acceptance criterion of 2200°F, no change in the LOCA limited maximum allowable LHR as a function of core elevation is expected for Crystal River Unit No. 3.

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Mr. Percy M. Beard, Jr.
Florida Power Corporation

Crystal River Unit No. 3 Nuclear
Generating Plant

cc:

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Mr. Percy M. Beard, Jr.

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January 23, 1991

It is our understanding that the revised LOCA evaluation bounds operation of Crystal River Unit No. 3, and demonstrates that Crystal River Unit No. 3 continues to comply with the acceptance criteria of 10 CFR 50.46.

This letter closes TAC No. 77811.

Sincerely,

Original signed by

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

cc: See next page

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