

June 7, 1996

Mr. Percy M. Beard, Jr.
Senior Vice President,
Nuclear Operations
Florida Power Corporation
ATTN: Manager, Nuclear Licensing
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER NUCLEAR GENERATING PLANT UNIT 3 - CONCERNS RELATING TO
LICENSE AMENDMENT REQUEST FOR ALTERNATE REPAIR CRITERIA FOR STEAM
GENERATOR TUBING (TAC NO. M92548)

Dear Mr. Beard:

Recently, the Commission issued Amendment No. 154 to Facility Operating License No. DPR-72 for the Crystal River Nuclear Generating Plant Unit 3. The amendment consisted of changes to the Technical Specifications in response to your application dated March 21, 1996, to allow alternate tube repair criteria for dispositioning tube indications in the once-through steam generators. The license amendment applied only to certain types and locations of indications and is effective for one cycle until Refuel 11.

Our review process involved numerous significant interactions between both our technical staffs. The staff believes that the quality of your performance in several areas needs improvement, and your submittals were untimely which contributed to an inefficient review process. I am enclosing a brief summary of the areas where improvements are needed. We request that you take appropriate action to address these issues. Within 30 days of receipt of this letter, please provide a written response to describe your assessment of these issues and any proposed corrective actions and a schedule for their implementation.

Also, please ensure that future requests for long-term license amendments are comprehensive, high quality and submitted early enough (in general, 1 year in advance of the target date for completing our review) so that we may utilize our resources most efficiently.

If you have any questions regarding this matter, please call L. Raghavan who can be reached at (301) 415-1471.

Sincerely,

Original signed by
Steven A. Varga, Director
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-302
Enclosure: As stated

cc w/enclosure:
See next page

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

Crystal River Unit No. 3
Generating Plant

cc:

Mr. Rodney E. Gaddy
Corporate Counsel
Florida Power Corporation
MAC-A5A
P.O. Box 14042
St. Petersburg, Florida 33733

Chairman
Board of County Commissioners
Citrus County
110 North Apopka Avenue
Iverness, Florida 34450-4245

Mr. Bruce J. Hickie, Director
Nuclear Plant Operations (NA2C)
Florida Power Corporation
Crystal River Energy Complex
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Mr. Larry C. Kelley, Director
Nuclear Operations Site Support
(SA2A)
Florida Power Corporation
Crystal River Energy Complex
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Mr. Robert B. Borsum
B&W Nuclear Technologies
1700 Rockville Pike, Suite 525
Rockville, Maryland 20852

Senior Resident Inspector
Crystal River Unit 3
U.S. Nuclear Regulatory Commission
6745 N. Tallahassee Road
Crystal River, Florida 34428

Mr. Bill Passetti
Office of Radiation Control
Department of Health and
Rehabilitative Services
1317 Winewood Blvd.
Tallahassee, Florida 32399-0700

Mr. Gary Boldt
Vice President - Nuclear Production
Florida Power Corporation
Crystal River Energy Complex
15760 W. Power Line Street
Crystal River, Florida 34428-6708

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, Georgia 30323

Mr. Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100

Mr. Kerry Landis
U.S. Nuclear Regulatory Commission
101 Marietta Street, N.W. Suite 2900
Atlanta, Georgia 30323-0199

Mr. Percy M. Beard, Jr. Letter dated June 7, 1996

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SUMMARY

By letter dated May 31, 1995, the Florida Power Company (FPC, the licensee) submitted a request for changing the Crystal River Unit 3 (CR-3) Technical Specifications (TS). The proposed amendment requested to change the CR-3 TS to permit the use of a voltage and dimensional-based steam generator tube repair criteria to disposition tube indications during inspections in Refuel 10 outage (1996 outage).

The proposed TS change dated May 31, 1995, expanded the scope of the repair criteria from that discussed with the NRC staff during the prior operating cycle. The licensee proposed using the same bases for dispositioning both wear and intergranular attack (IGA) indications despite clear differences in the voltage response, location, and growth rate of these two types of steam generator tube degradation mechanisms. The NRC has requested that licensees proposing new or alternative steam generator repair criteria submit these amendments well in advance of their desired implementation date to facilitate the review process. Although the licensee's submittal included a significant departure from previous discussions on a proposed steam generator tube plugging criteria, the licensee did not formally request a change to the plant TS until the final date committed to under the Confirmatory Action Letter issued by the NRC dated April 26, 1994. With the time available for review prior to the outage, the technical shortcomings of the proposal led to continued review up through the outage in which the repair criteria were applied.

The review process was lengthy and involved numerous and significant information exchanges between the licensee and the staff. The staff believes the licensee performance in several areas could have been improved. In addition, NRR does not plan to conduct reviews of this nature in the future. The following provides a brief summary of the areas of concern.

A. Quality of submittals

Licensee information included numerous inconsistencies and conflicting data or did not adequately respond to NRC requests for clarification. The following summarizes examples:

1. Incorrectly Labeled Data - One of the licensee's later submittals (April 8, 1996) included a second revision to a correlation (defect voltage-volume) that used five data points. Despite the importance given by the NRC and the licensee to the particular correlation and the limited data in the curve, one point in the revision to the correlation was incorrect. One of the five points appeared to be a combination of data from two separate indications. The cause of the mistake appeared to be the result of a failure to accurately relate data between two separate tables for degradation depth and eddy current voltage.
2. Discrepancies in Submitted Data - The staff requested additional information (by letter dated October 24, 1995) to resolve identified discrepancies in the data provided in the licensee's submittals dated April 19, 1994, and May 31, 1995. The licensee resubmitted data to support their technical bases for the proposed amendment. However, two of the tables included in the licensee's response conflicted with one another. The two separate tables included results from a previous destructive examination of pulled tube

specimens; however, the degradation depths given in the two tables were different for the same indications. As a result, it was still confusing as to the origin of data used in the licensee's technical basis.

3. Accuracy of Responses to NRC Staff Questions - On several occasions, the licensee provided information to the staff that appeared incorrect or conflicted with information provided at an earlier date. For example, the estimated number of tubes reported by the licensee as being affected by the volumetric IGA degradation mechanism for the proposed repair criteria ranged from 200 to 2400 tubes. Another difficulty encountered during the review was obtaining quick and accurate responses to staff questions. For example, the licensee was informed during a meeting held on December 15, 1995, that the correlations in support of the proposed amendment needed revision because some included apparently invalid data (see 4 below). The licensee stated during the meeting that they would revise this correlation considering the staff's comments. The revised correlation was not received for several months. When the staff did receive the revised version, it still contained data considered invalid. Eventually the licensee resubmitted the correlation without the use of the erroneous data.

B. Engineering Support

Due to the complexity of the technical issues related to the licensee's proposed alternate steam generator tube repair criteria, the NRC discussed many specifics of the proposal with the licensee's engineering staff. Although this is typical of the review process for most technically-based amendments, the licensee did not appear to be applying an appropriate level and resources necessary to address staff questions. The apparently limited resources applied by the licensee may have contributed to the weak technical bases in its initial submittals and responses. Such core issues as primary-to-secondary leakage integrity were addressed on only a limited basis despite the fact that the staff previously identified this as an issue in 1993. The following summarizes two specific examples where the staff identified weaknesses in the technical responses of the licensee. The items below are intended to merely highlight the areas of concern encountered in the review of the alternate steam generator tube repair criteria.

1. Inappropriate Use of Raw Data - The primary basis for the licensee's proposed voltage-based plugging criterion relied upon two correlations relating defect voltage, volume, and depth. The staff identified that the licensee inappropriately used data from tube destructive examinations. The errors involved combining volume data and including wear degradation data in the volume-depth relationship.
2. Reliance on Engineering Judgment - The licensee's responses to many of the staff questions included in the request for additional information dated October 24, 1995, were addressed qualitatively rather than using rigorous engineering evaluation. For example, one of the staff's concerns related to issues addressed quantitatively in studies to support other voltage-based steam generator tube repair criteria. The issues raised by the NRC staff were proven to be important considerations as validated in other studies. However,

the licensee elected to apply engineering judgment to conclude that the issues were not relevant to proposed repair criteria for the Crystal River steam generator tubes.

3. Failure to Understand Primary Issues - The NRC staff issued Generic Letter (GL) 95-05 which provided specific guidance related to voltage-based tube repair criteria for Westinghouse designed steam generators. The NRC staff frequently drew analogies between the licensee's proposed amendment request and the repair criteria addressed in GL 95-05. In most cases, this involved discussing the major issues associated with previously approved tube repair criteria: tube integrity (i.e., structural and leakage), inspection practices, degradation mechanism and growth rate, and long-term monitoring of the degradation. The licensee's original proposed amendment addressed some of these issues in part (e.g., leakage integrity) and did not address other issues (e.g., inspection practices).