

April 13, 2004

Mr. Dale E. Young, Vice President  
Crystal River Nuclear Plant (NA1B)  
ATTN: Supervisor, Licensing and  
Regulatory Programs  
15760 W. Power Line Street  
Crystal River, Florida 34428-6708

SUBJECT: REVIEW OF CRYSTAL RIVER, UNIT 3, STEAM GENERATOR TUBE  
INSERVICE INSPECTION SUMMARY REPORTS FROM THE FALL 2001  
OUTAGE (TAC NO. MB3015)

Dear Mr. Young:

By letters to the Nuclear Regulatory Commission (NRC) dated October 19, 2001 (ADAMS Accession No. ML013610008), and January 22, 2002 (ML020390420), Florida Power Corporation, the licensee for Crystal River, Unit 3, submitted reports summarizing the steam generator tube inspections performed during the Fall 2001 refueling outage. By letter dated December 2, 2002 (ML023470215), the licensee provided a response to the NRC staff's request for additional information (RAI) related to these summary reports. The NRC staff identified additional questions based on the licensee's December 2, 2002, RAI response. These questions were included in the discussion that took place on October 14, 2003, as part of the Crystal River, Unit 3, Fall 2003 steam generator inspection conference call. Additional questions resulting from the licensee's RAI response and the licensee's response to those questions during the aforementioned conference call are enclosed. A summary of the other steam generator inspection topics discussed during the Fall 2003 outage conference call was documented separately in a letter to the licensee dated February 17, 2004 (ML040480224).

This completes the NRC staff's efforts under TAC No. MB3015.

If you have any questions regarding this matter, please contact me at (301) 415-2020.

Sincerely,

*/RA/*

Brenda L. Mozafari, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: As stated

cc w/enclosure: See next page

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## CRYSTAL RIVER, UNIT 3

### ADDITIONAL CONFERENCE CALL QUESTIONS

Based on a review of conference calls with Florida Power Corporation (also doing business as Progress Energy-Florida) regarding its December 2, 2002, response (ADAMS Accession No. ML023470215) to a Nuclear Regulatory Commission (NRC) request for additional information (RAI), the NRC staff developed several questions. These questions were provided to the Crystal River, Unit 3, (CR3, licensee) staff and discussed with them during a conference call on October 14, 2003. The questions, along with the licensee's responses to the questions, are summarized below. The licensee's response is shown in italics immediately following each question. References to specific question numbers pertain to the licensee's December 2, 2002, RAI response.

1. The response to question 1d indicated that rotating coil (RC) eddy current data are the qualified detection and sizing technique for wear. In addition, the response stated that for the 2001 inspection, an RC inspection of bobbin indications at the tube support plate (TSP) was only performed if an RC was not previously performed at that location (i.e., new indication), or if an RC inspection was previously performed and the bobbin voltage increased more than 0.5 volts (i.e., repeat indication, believed to be wear based on the earlier RC inspection data, and depth-sized to determine whether the tube should be plugged).

Are the inspection criteria described above also being implemented during the 13R (Fall 2003) SG inspection?

*The licensee indicated that, in general, the inspection criteria described above were also being implemented during the 13R SG inspection.*

Given that the RC is the qualified sizing technique for wear at CR3, how were wear signals sized during outage 12R, and plugging decisions made based on flaw depth in accordance with the CR3 technical specifications, if an RC inspection was not performed?

*The licensee indicated that the bobbin probe is also qualified for detection and sizing of wear at Crystal River, Unit 3.*

What is the basis for the 0.5 volt change criteria for determining whether an RC inspection is warranted? What eddy current data (i.e., which outage) is utilized for the comparison of bobbin voltage? If the comparison is made against the previous outage data (i.e., one cycle), has recent industry operating experience (i.e., Comanche Peak and Oconee) changed this practice such that current data are compared to data from more than a cycle ago?

*The licensee indicated that the 0.5 volt change criterion was based on conservative assumptions that a 0.5 volt indication was equivalent to a wear scar less than 20-percent through-wall. The licensee responded that during previous outage inspections, bobbin probe voltage data were compared against the*

*previous outage data. However, this requirement was modified for the Fall 2003 outage inspection, based on industry operating experience, such that all bobbin data were compared against the 1997 outage data (i.e., 3 cycles). In addition, the change criteria were modified to require RC inspections if the voltage changed by either 0.5 volts or 25 percent since the 1997 inspection.*

2. The response to question 1e states that six tubes with degradation at TSP intersections were removed from service during the 12R outage due to degradation other than wear. Did the bobbin data from these six tubes meet the 0.5 volt change criterion discussed above?

*The licensee indicated that these six tubes were further investigated with an RC, and subsequently plugged, due to reasons other than the 0.5 volt change criterion (e.g., a non-quantifiable indication).*

3. Information was provided on the circumferential indication identified at the TSP intersection during outage 12R. A driving mechanism was not identified for the presence of a circumferential crack in this location (i.e., no geometry change or causative residual stresses). Although this particular indication appears to have been identified via the bobbin probe inspection, the bobbin probe is not qualified for detection of circumferential cracks and, therefore, should not be relied on for detection of circumferential cracks. Given this, what additional RC inspection plans, if any, do you have for outage 13R related to this issue?

*The licensee clarified that this circumferential indication was initially identified as a single volumetric indication (SVI) because there was both an axial and circumferential component to the degradation (i.e., preferentially oriented intergranular attack). However, because it was preferentially oriented in the circumferential direction, it was labeled differently for the final report. Based on this information, and the fact that the indication was detected with the bobbin probe, the licensee determined there was no need to perform additional rotating coil inspections during the Fall 2003 outage.*

4. Please be prepared to discuss the response to question 5k (condition monitoring and operational assessment leakage predictions) in more detail. The NRC staff wants to ensure a thorough understanding of the information provided to assist in the condition monitoring and operational assessment discussion for the 13R outage results.

*The NRC staff asked specific questions related to the data provided in response to the original questions on condition monitoring and operational assessment leakage predictions. The licensee indicated that they would review their internal documents and would respond to the NRC staff's questions at a later date. The subsequent discussions on this topic are documented in the NRC staff's summary of the Fall 2003 refueling outage conference calls concerning steam generator topics. (ML number not yet available)*

Crystal River Nuclear Plant, Unit 3

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