Progress Energy

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 50.90

January 21, 2008
3F0108-04

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Crystal River Unit 3 – Review of License Amendment Request #264: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity

References:
1. Technical Specification Task Force (TSTF) Traveler TSTF-449, Revision 4 dated May 6, 2005, "Steam Generator Tube Integrity"
2. FPC Letter to NRC dated May 25, 2006, "Crystal River Unit 3 – License Amendment Request #264, Revision 0: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity"
3. FPC Letter to NRC dated December 21, 2006, "Crystal River Unit 3 – License Amendment Request #264, Revision 1: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity and Response to Request for Additional Information"
4. FPC Letter to NRC dated March 14, 2007, "Crystal River Unit 3 – License Amendment Request #264, Revision 2: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity and Response to Request for Additional Information (TAC No. MD2054)"
5. NRC Letter to FPC dated May 16, 2007, "Crystal River Unit 3 – Issuance of Amendment Regarding Steam Generator Tube Inspection Program (TAC No. MD2054)"
6. Regulatory Issue Summary (RIS) 2007-20 dated August 23, 2007, "Implementation of Primary-to-Secondary Leakage Performance Criteria"

Dear Sir:

In 2005, TSTF-449, Revision 4 (Reference 1) was issued which proposed changes to generic plant technical specifications to make them more performance-based in order to improve monitoring of steam generator tube integrity. Crystal River Unit 3 (CR3) License Amendment Request (LAR) #264 (documented in References 2, 3, and 4) received NRC approval on May 16, 2007 (Reference 5) as Amendment 223 which implemented changes consistent with those proposed by TSTF-449. After the issuance of this amendment, the U.S. Nuclear Regulatory Commission (NRC) issued RIS 2007-20 (Reference 6) to document their position on the implementation of the primary-to-secondary leakage performance criteria introduced by TSTF-449.

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NRR

Since RIS 2007-20 was issued after CR3 received approval of Amendment 223, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Incorporated, reviewed the RIS to determine its impact on the approved amendment. This review uncovered an error in the information that had been provided in LAR #264. Specifically, the primary-to-secondary leak rates assumed in the licensing basis accident analysis were incorrectly identified in the LAR to be based on room temperature conditions rather than accident conditions. This error is not deemed to have a significant implication on the public health and safety or common defense and security, and is therefore not reportable under 10 CFR 50.9, "Completeness and Accuracy of Information." The attachment to this letter discusses the details of this issue.

No new regulatory commitments are made in this letter.

If you have any questions regarding this submittal, please contact Mr. Dennis Herrin, Acting Supervisor, Licensing and Regulatory Programs at (352) 563-4633.

Sincerely,

Dale E. Young
Vice President
Crystal River Nuclear Plant

DEY/dar

Attachment: Temperature Conditions Assumed in Licensing Basis Accident Analysis as Identified in License Amendment Request #264

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector
State Contact

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER UNIT 3

DOCKET NUMBER 50-302 / LICENSE NUMBER DPR-72

Crystal River Unit 3 – Review of License Amendment Request #264: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity

ATTACHMENT

Temperature Conditions Assumed in Licensing Basis Accident Analysis as Identified in License Amendment Request #264

Temperature Conditions Assumed in Licensing Basis Accident Analysis as Identified in License Amendment Request #264

On August 23, 2007, the United States Nuclear Regulatory Commission (NRC) issued Regulatory Issue Summary (RIS) 2007-20, "Implementation of Primary-to-Secondary Leakage Performance Criteria" (Reference 6). This RIS documented the NRC's position on the implementation of the primary-to-secondary leakage performance criteria introduced by Technical Specification Task Force (TSTF)-449 (Reference 1). This TSTF identified changes to generic plant technical specifications to make them more performance-based in order to improve monitoring of steam generator tube integrity. Crystal River Unit 3 (CR3) License Amendment Request (LAR) #264 was submitted to adopt TSTF-449 into the CR3 ITS. The LAR received NRC approval on May 16, 2007, and was implemented as Amendment 223 to the CR3 ITS (Reference 5). As such, Florida Power Corporation (FPC), doing business as Progress Energy Florida, Incorporated, reviewed the RIS to assess any impact it might have on the approved amendment.

To clarify their position in the RIS, the NRC identified eight specific aspects of accident induced primary-to-secondary leakage. The third of these discussed the temperature at which leakage rates are calculated. Primary-to-secondary leak rates measured during normal operation and assumed in the accident analyses are presented as volumetric flow rates. The RIS pointed out that these volumetric leak rates should be evaluated at temperatures consistent with what is assumed in the accident analyses. Since the volume occupied by a mass of water will be different at different temperatures, a calculation involving volumetric leakage will be affected by the temperature assumed in the calculation. This is why a template created by the NRC for industry TSTF-449 submittals included the identification of temperature conditions assumed in the leakage calculations for the licensing accident analysis.

In References 2, 3, and 4, FPC followed this template to provide the information requested by TSTF-449. In Section 6.1 of an attachment to each of these three references, titled Description and Assessment, a table presents information to support the NRC's review of the amendment request. The last item in this table presents performance criteria for accident leakage. The requested information in the template for this item is "Primary to secondary leak rate values assumed in licensing basis accident analysis, including assumed temperature conditions." In all three references, FPC identified this item to be "1 gpm at room temperature assumed in the CR-3 Final Safety Analysis Report." In reviewing the RIS for relevancy to the amendment, it was discovered that this information was incorrect in the referenced documents.

For the Main Steam Line Break – Off Site Dose calculation, the CR3 Final Safety Analysis Report (FSAR) states that a one gallon per minute primary-to-secondary leak is assumed in the affected steam generator. However, no information is provided that defines the conditions under which this leakage is determined. The conclusion that this was based on room temperature conditions was mistakenly drawn from the review of a similar, but inappropriate calculation that turned out not to be the basis for the FSAR analysis.

The results presented in the FSAR are from a calculation (Reference 7) which was based on an earlier calculation (Reference 8) that provided information relevant to the leakage assumptions. Table 2-1 of this earlier calculation shows the amount of primary-to-secondary coolant mass

released between 0 and 2 hours was evaluated at a density of 50 lbm/ft^3. The density of water at room temperature conditions would be closer to 62 lbm/ft^3. A density of 50 lbm/ft^3 is more consistent with conditions for an accident than room temperature. This means References 2, 3, and 4 incorrectly identified the CR3 primary-to-secondary leak rates in the licensing basis accident analysis to be based on a room temperature condition. The statement in Table 2-1 of References 2, 3, and 4 should have identified the performance criteria for accident leakage to be "1 gpm at accident conditions assumed in the CR3 FSAR."

This error has no effect on the intent of the LAR #264 or Amendment 223.

To document the resolution of this issue, a Nuclear Condition Report (NCR) was entered in CR3's corrective action program. Although resolution of this NCR is not yet complete, it has been determined that the incorrect information reported in References 3, 4 and 5 does not represent a nonconservative assumption that could result in a violation of performance criteria. During the recent 15R refueling outage, steam generator tube inspections were performed to determine, in part, postulated accident induced primary-to-secondary leakage. To confirm performance criteria for this inspection, information from Reference 6 was taken into account. From the 15R CR3 steam generator inspection, the as-found results and the preliminary as-left results showed the postulated leakage did not exceed the allowable leakage rate. As such, the incorrect statement in References 2, 3, and 4 that primary-to-secondary leak rates were calculated for the licensing basis accident at room temperature conditions (rather than at accident conditions) is not deemed to have a significant implication on the public health and safety or common defense and security, and is therefore not reportable under 10 CFR 50.9, "Completeness and Accuracy of Information."

References:

1. TSTF-449, Revision 4 dated May 6, 2005, "Steam Generator Tube Integrity"
2. FPC Letter to NRC dated May 25, 2006, "Crystal River Unit 3 – License Amendment Request #264, Revision 0: Application to Modify Improved Technical Specifications Regarding Steam Generator Tube Integrity"
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5. NRC Letter to FPC dated May 16, 2007, "Crystal River Unit 3 – Issuance of Amendment Regarding Steam Generator Tube Inspection Program (TAC No. MD2054)"
6. RIS 2007-20 dated August 23, 2007, "Implementation of Primary-to-Secondary Leakage Performance Criteria"
7. N-00-0005, Revision 0 dated August 19, 2000, "Public Dose from a Main Steam Line Break Using the Alternative Source Term"
8. F-97-0018, Revision 2 dated December 5, 2001, "CR-3 MSLB w/MFP Trip Failure"