

August 22, 2006

Mr. J. A. Stall  
Senior Vice President, Nuclear and  
Chief Nuclear Officer  
Florida Power and Light Company  
P.O. Box 14000  
Juno Beach, Florida 33408-0420

SUBJECT: TURKEY POINT NUCLEAR PLANT, UNITS 3 AND 4 - REQUEST FOR  
ADDITIONAL INFORMATION REGARDING SCOPE OF STEAM GENERATOR  
TUBE INSPECTIONS WITHIN THE THICKNESS OF THE TUBE SHEET  
(TAC NOS. MD1380 AND MD1381)

Dear Mr. Stall:

By letter dated April 27, 2006, Florida Power & Light Company requested amendments to the technical specifications for Turkey Point Nuclear Plant, Units 3 and 4, concerning the scope of steam generator tube inspections within the thickness of the tubesheet.

The U.S. Nuclear Regulatory Commission staff has reviewed your request and finds that a response to the enclosed Request for Additional Information is needed before we can complete the review.

This request was discussed with members of your staff and on August 10, 2006, Ms. Olga Hanek agreed that a response would be provided by September 30, 2006. If you have any questions, please contact me at (301) 415-3974.

Sincerely,

**/RA/**

Brendan T. Moroney, Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: As stated

cc w/encl: See next page

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NRR-088

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REQUEST FOR ADDITIONAL INFORMATION

TURKEY POINT NUCLEAR PLANT, UNITS 3 AND 4

INSPECTION OF STEAM GENERATOR TUBE PORTION WITHIN THE TUBESHEET

DOCKET NOS. 50-250 AND 50-251

By letter dated April 27, 2006, Florida Power & Light Company (the licensee) requested amendments to the technical specifications (TSs) for Turkey Point Nuclear Plant, Units 3 and 4, concerning the scope of steam generator (SG) tube inspections within the thickness of the tubesheet. The U.S. Nuclear Regulatory Commission (NRC) staff needs the following additional information in order to complete its review:

1. The requirements of TS Surveillance Requirement (SR) 4.4.5.5.b for the 12-month Special Report do not adequately address the proposed revisions to SG inspections and should be expanded to include:
  - (a) The number of indications detected in the upper 17-inches of the tubesheet thickness along with their location, measured size, orientation, and whether the indication initiated on the primary or secondary side.
  - (b) The operational primary-to-secondary leakage rate observed in each SG during the cycle preceding the inspection that is subject of the report and the calculated accident leakage rate for each SG from the lowermost 4 inches of tubing for the most limiting accident. If the calculated accident leakage rate for any SG is less than two times the total observed operational primary to secondary leakage rate, the 12-month report should describe how it was determined.

Please indicate your plans to revise SR 4.4.5.5.b.

2. Under the proposed 17-inch tubesheet inspection zone, it is the licensee's contention that the accident leakage integrity of the tubing below the 17-inch inspection zone is ensured by the bellwether principle. Please submit a leakage sensitivity study to support the conservatism of the bellwether approach, which projects that leakage during accidents will not exceed two times that observed during normal operating conditions. This study should consider axial and circumferential flaws located at the bottom of the tubesheet at three tubesheet radial locations - at the zero radius, mid-radius, and peripheral locations. For each type crack at each location, leakage under normal operating and accident conditions should be evaluated considering only the crack leakage resistance, considering only the tube to tubesheet annulus resistance and, lastly, considering the total resistance of the crack and annulus to leakage. (Note: The NRC staff is more focused on the relative values of the predictions between normal operating and accident conditions rather than the absolute values of the leakage predictions. The licensee hasn't requested that the staff review the leakage prediction models. However, the staff believes that these models, which are based on standard engineering principles, should be capable of providing at least a qualitative demonstration supporting the bellwether approach.)

Enclosure

3. Section 8.2 of Enclosure 6 of the submittal provides a justification for why ligament tearing of circumferential cracks is not a significant concern. Provide a justification for why ligament tearing of axial cracks at the bottom of the tubesheet at the periphery is, similarly, not a significant concern.
4. Are there any tubes in the Turkey Point SGs that were not fully expanded (per nominal) within the tubesheet? If so, please describe the extent of this condition and justify why the amendment request is sufficient to ensure the structural and leakage integrity of the affected tube joints.
5. In Section 7.1.3 of Enclosure 6, the tubesheet bow analysis takes credit for resistance against bow provided by the divider plate. Cracks in the welds connecting the tubesheet and divider plate have been found by inspection at some foreign SGs. Describe what actions are planned to ensure that the divider plates can perform their function, including providing the assumed resistance against tubesheet bow.
6. On Page 3 of Enclosure 1, there is a proposed revision to the Bases for TS 3/4.4.5, which states that the 150 gallons per day (gpd) primary-to-secondary leakage limit ensures that leakage under accident conditions will remain within the licensing basis accident analyses. While this is true, the main purpose of establishing a 150 gpd operational leakage limit was to ensure that SG tube structural integrity is maintained during a design basis accident. Please discuss your plans to modify this statement (Note: Refer to the wording in the TS Task Force traveler TSTF-449, published in the *Federal Register* on May 6, 2005 [70 FR 24126].)
7. Please confirm whether you evaluated all SG design basis accidents to ensure that the Steam Line Break is the most limiting from the stand point of meeting the limits of Title 10 of the *Code of Federal Regulations*, Part 100 and General Design Criterion 19. In addition, please describe the initial accident leak rates assumed in your design accident basis analyses.
8. Observation (no response is needed) - On page 5-1 of Enclosure 6 of the submittal, an item 3 should be added in Section 5.2 as follows:

“Calculated primary-to-secondary side leak rate during postulated events should:

  - 1) . . . .
  - 2) . . . .
  - 3) not exceed 1 gallon per minute (gpm) per steam generator (SG).”

Mr. J. A. Stall  
Florida Power and Light Company

## **TURKEY POINT PLANT**

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