

October 24, 2006

Mr. J. A. Stall  
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Chief Nuclear Officer  
Florida Power and Light Company  
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Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR PLANT, UNIT 2 - REQUEST FOR ADDITIONAL  
INFORMATION REGARDING STEAM GENERATOR TUBE INTEGRITY  
TECHNICAL SPECIFICATION AMENDMENT REQUEST (TAC NO. MD2322)

Dear Mr. Stall:

By letter dated May 25, 2006, Florida Power and Light Company (FPL) requested an amendment to the St. Lucie Nuclear Plant, Unit 2, technical specifications (TSs) requirements regarding steam generator (SG) tube integrity, based on TS Task Force traveler TSTF-449.

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

This request was discussed with members of your staff who indicated that, due to significant demands on FPL SG technical resources during the fall outage season, a response could not be provided before February 2007. Normally, such a delay would not be acceptable because it would significantly challenge timeliness goals for processing license amendment requests. Failure of a licensee to provide a timely response can result in termination of the NRC staff's review. However, since this amendment request was submitted in response to Generic Letter (GL) 2006-01, "Steam Generator Tube Integrity and Associated Technical Specifications," termination of the review would require FPL to provide other documentation in accordance with GL 2006-01. The NRC staff recognized that this would probably be more burdensome on the FPL staff and could possibly delay achieving the primary goal of GL 2006-01 of adopting new SG inspection requirements in plant TSs. Therefore, in a discussion with Mr. Ken Frehafer on September 26, 2006, it was agreed that a response to the enclosed RAI would be provided by February 1, 2007.

J. Stall

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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 No. 50-389

Enclosure: RAI

cc w/encl: See next page

J. Stall

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If you have any questions, please contact me at (301) 415-3974.

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Brendan T. Moroney, Project Manager  
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cc w/encl: See next page

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| DATE   | 10/24/06  | 10/24/06  | 9/13/06                 | 10/24/06  |

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## REQUEST FOR ADDITIONAL INFORMATION

### ST LUCIE NUCLEAR PLANT, UNIT NO. 2

#### STEAM GENERATOR TUBE INTEGRITY TECHNICAL SPECIFICATION AMENDMENT

##### DOCKET NO. 50-389

1. Proposed Limiting Condition for Operation (LCO) 3.4.5 states that "All SG [steam generator] tubes satisfying the tube repair criteria shall be plugged or repaired in accordance with the SG Program." The staff is aware that the Saint Lucie Unit 2 original SGs (OSGs) are to be replaced in 2007, therefore, this LCO applies only to the OSGs. Please discuss your plans to modify this LCO to indicate that repair applies only to the OSGs. For the same reason, discuss your plans to modify LCO 3.4.5.a, LCO 3.4.5.a.2, and Surveillance Requirement (SR) 4.4.5.2. In addition, LCO 3.4.5.a.2 on page 7 of Attachment 2 is not consistent with LCO 3.4.5.a.2 on page 6 of Attachment 3 (i.e., ". . . or repair . . ." omitted from Attachment 3).
2. Regarding proposed Action b for Technical Specification (TS) Section 3/4.4.5, discuss your plans to replace "next" with "following" to make it consistent with the language used in other portions of your TSs or describe your plans to adopt the wording from TS Task Force traveler TSTF-449 (i.e., be in MODE 5 within 36 hours).
3. On page 3/4 4-18 of the proposed TSs, you include the statement ". . . per Surveillance Requirement 4.4.6.2.1.c . . ." in two places. The purpose of adding this statement in this section is not clear since SR 4.4.6.2.1.c has no additional details that are not already included in the requirements where this statement is added. Explain the purpose of adding this statement or discuss your plans to remove this statement from page 3/4 4-18.
4. Proposed TS Section 4.4.6.2.1.e, page 3/4 4-20, appears to have a typographical error (i.e., it is missing a verb). Discuss your plans to modify this requirement from "verified  $\leq 150$  gallons per day" to "verified to be  $\leq 150$  gallons per day."
5. Proposed TS Section 6.8.4.I.1 references a "Replacement Steam Generator Program" and proposed TS Section 6.8.4.I.2 references an "Original Steam Generator Program." These references are awkward (since it implies that the program is being replaced rather than the program applies to the replacement steam generators (RSGs)). Discuss your plans for removing "replacement" and "original" from these sections since the remaining text in these sections clearly indicate that proposed TS Section 6.8.4.I.1 applies to the RSGs and proposed TS Section 6.8.4.I.2 applies to the OSGs.
6. There appears to be a couple of typographical errors associated with proposed TS Sections 6.8.4.I.1.b.2 and 6.8.4.I.2.b.2. Discuss your plans to correct these apparent errors: (a) there should be an "a" between "than" and "SG," (b) "gpm" should be "gallons per minute," and (c) there should be an "all" between "through" and "SGs."
7. The last sentence of proposed TS Section 6.8.4.I.1.d, Steam Generator Program for the RSGs, states ". . . the tube may be susceptible . . ." Discuss your plans to modify this TS section to state ". . . the tubes may be susceptible . . ." to be consistent with

TSTF-449. In addition, discuss your plans to make the same modification to TS Section 6.8.4.1.2.d for the Steam Generator Program for the OSGs.

8. Regarding proposed TS Section 6.8.4.1.2.c, please address the following:
- a. As proposed, TS Sections 6.8.4.1.2.c.1.ii and iii can be applied as an alternative to the 40-percent depth based criterion. However, since these are not alternatives to the 40-percent depth based criterion, discuss your plans to modify your proposal to indicate that these are not alternatives.
  - b. Discuss your plans to remove reference to “service induced imperfection, degradation, or defect” in proposed TS Section 6.8.4.1.2.c.1.ii, since these terms are no longer defined in your proposed TS. TSTF-449 uses the term “flaw” rather than imperfection, degradation, or defect.
  - c. Discuss your plans to remove TS Section 6.8.4.1.2.c.1, since this text is no longer needed given the sentences before it. The staff notes that the reference to TS Section 6.8.4.1.2.f.1 in this proposed TS can be moved to TS Section 6.8.4.1.2.c (if needed).
  - d. Discuss your plans to modify TS Section 6.8.4.1.2.c.1.i to simply indicate that the flaws above a specified distance in the tubesheet (i.e., the distance specified in your current TSs) must be plugged on detection and all flaws below this distance may remain in service.
  - e. Given that a tube includes the sleeve, discuss your plans to clarify which criteria apply specifically to the non-sleeved region of the tube.

To address these comments, wording such as the following could be considered:

- c. Provisions for SG tube repair criteria
  1. Tubes found by inservice inspection to contain a flaw in a non-sleeved region with a depth equal to or exceeding 40-percent of the nominal tube wall thickness shall be plugged or repaired except if permitted to remain in service through application of the alternate tube repair criteria discussed in Technical Specification 6.8.4.1.2.c.4.
  2. Tubes found by inservice inspection to contain a flaw in (a) a sleeve or (b) the pressure boundary portion of the original tube wall in the sleeve to tube joint shall be plugged.
  3. All tubes with sleeves that have a nickel band shall be plugged after one cycle of operation.
  4. The C\* methodology, as described below, may be applied to the expanded portion of the tube in the hot-leg

tubesheet region as an alternative to the 40-percent depth based criteria of Technical Specification 6.8.4.1.2.c.1

- i. Tubes with no portion of a lower sleeve joint in the hot-leg tubesheet region shall be repaired or plugged upon detection of any flaw identified within 10.3 inches below the bottom of the hot-leg expansion transition or top of the tubesheet, whichever elevation is lower. Flaws located below this elevation may remain in service regardless of size.
- ii. Tubes which have any portion of a sleeve joint in the hot-leg tubesheet region shall be plugged upon detection of any flaw.

9. Regarding proposed TS Section 6.8.4.1.2.d, please address the following:
  - a. Discuss your plans to indicate that the length of the tube is “from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet. The tube-to-tubesheet weld is not part of the tube.”
  - b. Discuss your plans for indicating that: “In tubes repaired by sleeving, the portion of the original tube wall between the sleeve’s joints is not an area requiring inspection.”
  - c. It is not clear that the “Tube Inspection” section of this proposed TS is needed since the criteria in the first paragraph of this specification indicates that the inspections shall be performed to detect flaws that may satisfy the applicable tube repair criteria. Since all flaws are acceptable below 10.3 inches from the top of the tubesheet or the bottom of the expansion transition (whichever is lower), no “inspections” are needed. Discuss your plans for removing the “Tube Inspection” paragraph and reference to it in the first paragraph of this proposed TS.
  - d. Discuss your plans to clarify proposed TS Section 6.8.4.1.2.d.3, since your inspections may not coincide with refueling outages (and since it implies that the parent tube behind the sleeve would require an inspection). For example, “Inspect 100 percent of all inservice sleeves and sleeve-to-tube joints every 24 effective full-power months or one refueling outage (whichever is less).”
10. Regarding proposed TS Section 6.8.4.1.2.f.1, discuss the reason for adding the following phrase: “(with range of conditions as revised in Appendix A of WCAP-16489-NP, Revision 0).” In addition, discuss your plans for removing the second sentence, since TS Section 6.8.4.1.2 only applies to the OSGs. For example, “1. Westinghouse Leak Limiting Alloy 800 sleeves as described in WCAP-15918-P, Revision 2. Prior to the installation of each sleeve, the location where the sleeve joints are to be established shall be inspected.”

11. As currently proposed, TS Section 6.9.1.12 would apply to both your OSGs and RSGs. Since it applies to the OSGs, it discusses tube repairs (although the staff notes that the reference to repair is missing from items “e” and “f”). Since tube repair is not applicable to the RSGs, discuss your plans to clarify what reporting requirements are applicable to the RSGs and which are applicable to the OSGs (alternatively, discuss your plans to make TS Section 6.9.1.12 apply to the RSGs and TS Section 6.9.1.13 apply to the OSGs). Regarding proposed TS Section 6.9.1.13, please discuss your plans to specifically reference TS Section 6.8.4.1.2. In addition, discuss your plans to delete the last two sentences of TS Section 6.9.1.13.c, since operation is not permitted when the accident induced leakage limit is exceeded.
12. In the first paragraph on page 8 of Attachment 4, you indicate that your accident analyses assumes the total primary-to-secondary leakage from all SGs is 0.3 gpm [gallons per minute] total or 216 gpd [gallons per day] through any one SG as a result of accident conditions. As currently written, it appears that your accident analyses could either be based on 0.3 gpm or 216 gpd (i.e., 0.15 gpm). Please discuss if it was your intent to indicate that your accident analyses assumes the primary-to-secondary leakage from all SGs is 0.3 gpm with no more than 216 gpd coming from any one SG. If so, discuss your plans to modify your Bases to indicate this. The same comment applies to similar statements on pages 9 and 13 of 17 of Attachment 4 (although page 13 indicates that both conditions must be met). Also, discuss your plans to indicate that the accident analysis assumes the leakage could increase to these levels (to make your submittal consistent with TSTF-449).
13. Proposed Bases Section 3/4.4.6 discusses repairs that apply only to the OSGs. In addition, proposed Bases Section 3/4.4.5, Steam Generator Tube Integrity, discusses tube repairs that only apply to the OSGs. Discuss your plans to modify your Bases to indicate that repair only applies to the OSGs.
14. In the first paragraph on page 9 of Attachment 4, there appears to be a typographical error, “verses” should be “versus.” Discuss your plans to correct this error.
15. On page 11 of Attachment 4, you indicate that the affected tubes(s) must be plugged or repaired prior to entering Hot Standby. Discuss your plans to modify this statement since the corresponding requirement to plug the tube(s) is before entering Hot Shutdown.
16. You made several changes to Bases Section 3/4.4.6, Reactor Coolant System Leakage, that go beyond TSTF-449. Confirm that all of the proposed changes are consistent with your current U.S. Nuclear Regulatory Commission (NRC) approved design and licensing basis. If they are not consistent, provide the technical justification or discuss your plans to remove them.
17. Provide justification for omitting the following paragraph from proposed Bases Section 3/4.4.6.2, Reactor Coolant System Operational Leakage.

“10 CFR 50 [Title 10, *Code of Federal Regulations*, Part 50], Appendix A, GDC [General Design Criterion] 30 (Ref. X), requires means for detecting and, to the extent

practical, identifying the sources of reactor coolant leakage. Regulatory Guide 1.45 (Ref. X) describes acceptable methods for selecting leakage detection systems.”

Alternatively, discuss your plans to incorporate this information into this bases section.

18. On page 13 of Attachment 4, proposed Bases Section 3/4.4.6.2 states, “Therefore, monitoring reactor coolant leakage into the containment area is necessary.” Discuss your plans to modify this Bases section by stating “Therefore, detecting and monitoring reactor coolant leakage into the containment area is necessary.”
19. Regarding the Applicable Safety Analyses Section on page 13 of Attachment 4, address the following:
  - a. In the second sentence, the word “all” appears to be missing between “through” and “SGs.” Discuss your plans to correct this apparent typographical error.
  - b. Confirm that your proposed 150-gpd operating leakage limit (measured at room temperature) is less than or equal to your accident analysis assumption of 216 gpd (measured at operating temperature). If it is not, discuss your plans to modify your operating leakage limit to be less than (or equal to) your accident induced leakage limit. In addition, discuss your plans to modify/delete the fifth sentence of this section.
  - c. Discuss your plans to remove the sixth sentence of this section since it adds no insights into the basis for your TSs.
  - d. Discuss your plans to remove the last half of the seventh sentence of this section, since it is not clear that simply limiting the operating leakage to half the value assumed in the accident analysis will always be sufficient at ensuring the accident induced leakage limit will be met (as evidenced by operating experience). The NRC staff notes that it will depend, in part, on the nature of the flaw that is leaking.
20. On page 6 of Attachment 4, your current Bases state that the dosage contribution from the tube leakage will be limited to a small fraction of 10 CFR Part 100 limits. Then, on page 13 of the same Attachment, your proposed Bases state that the dose consequences are within the limits of 10 CFR Part 50, Appendix A, GDC 19, 10 CFR Part 100, 10 CFR Section 50.67, or the NRC-approved licensing basis. Clarify whether your current NRC-approved accident source term is based on Part 100 (which is referenced in your current TS Bases), 10 CFR 50.67, or both. On page 8 of Attachment 4 in your submittal, the last sentence of the first paragraph currently reads: “. . . or the NRC approved licensing basis (e.g., a small fraction of these limits).” Then, on page 13 of the same Attachment, the same sentence appears but the statement included in the parenthesis is missing. Discuss your plans to add this statement in this section.
21. Regarding the second paragraph under Item “c” on page 14 of Attachment 4, please discuss your plans for removing this paragraph, since it is (for the most part) redundant to the paragraph in the Applicable Safety Analysis section. In addition, the NRC staff



concluded that the 150 gpd operating leakage limit is acceptable since it is an effective measure for limiting the frequency of tube ruptures. Although there is a statement in the Bases associated with TSTF-449 that the 150 gpd leakage limit is less than the conditions assumed in the accident analysis, this is just an observation reflecting that previously the normal operating leakage limit was consistent with the accident-induced leakage limit and now it was “significantly less” than the accident-induced leakage limit.

22. In Bases Section 3/4.4.6.d on page 14 of Attachment 4, there appears to be a typographical error in the first sentence. It appears that “with” should be “within.”
23. In Action c on page 15 of Attachment 4, you have inserted several statements that go beyond the corresponding Action statements in your TSs (e.g., adding check valves). Discuss your plans for removing these extra statements/clarifications or demonstrate that these statements/clarifications are consistent with your currently approved design and licensing basis.
24. On page 15 of Attachment 4, the first “within” should be deleted from Action d.
25. On page 15 of Attachment 4, there appears to be a typographical error in the last sentence of the proposed Bases for SR 4.4.6.2.1. It appears that “or” should be “of.”
26. Under SR “a and b.” on page 16 of Attachment 4, you indicate that gaseous or particulate radioactivity monitor and the containment sump level must be monitored. Since the associated SRs indicate that gaseous and particulate monitors should be monitored, discuss your plans to make your Bases consistent with the SR. In addition, since the associated SR indicates that containment sump inventory and discharge should be monitored, discuss your plans to make your Bases consistent with the SR.
27. A discussion was provided for the reactor coolant system (RCS) pressure isolation valve leakage in proposed Bases Section 3/4.4.6.2.e. This discussion does not correspond with RCS pressure isolation valve leakage discussion in the standard TSs. Discuss your plans to incorporate the standard TS RCS pressure isolation valve leakage into this bases or discuss why it is not appropriate to do so.
28. Provide justification for omitting the following information from SR 4.4.6.2.1.c in proposed Bases Section 3/4.4.6.2.  
  
“The 12 hour allowance provides sufficient time to collect and process all necessary data after stable plant conditions are established.”  
  
Alternatively, discuss your plans to incorporate this information into the bases.
29. Discuss your plans to modify SR 4.4.6.2.1.c in proposed Bases Section 3/4.4.6.2 to state, “Steady state operation is required to perform a proper water inventory balance . . .”

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