



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

December 9, 2008

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 UNITS 3 AND 4 – SAFETY EVALUATION FOR RELIEF  
REQUEST NO. 3 AND RELIEF REQUEST NO. 4 FOR THE USE OF A  
RISK-INFORMED INSERVICE INSPECTION PROGRAM (TAC NOS. MD7740  
AND MD8875)

Dear Mr. Stall:

By letters L-2007-204 and L-2007-205 to the U.S. Nuclear Regulatory Commission (NRC) dated December 7, 2007, as supplemented in letter L-2008-181 dated August 22, 2008, Florida Power and Light submitted Relief Requests Number 3 and 4 for the fourth 10-year inservice inspection (ISI) interval for Turkey Point Units 3 and 4, respectively. The submittals request relief from American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI requirements for the selection and examination of Class 1 piping welds. The relief requests propose to use a risk-informed ISI (RI-ISI) program developed based on the methodology contained in Westinghouse Owners Group (WOG) Topical Report WCAP-14572, Revision 1-NP-A, "Westinghouse Owners Group Application of Risk-Informed Methods to Piping Inservice Inspection Topical Report," instead of a program developed according to the ASME Code requirements for Class 1 piping welds. The NRC endorsed the WOG RI-ISI methodology in its safety evaluation dated December 15, 1998.

The NRC staff has reviewed the licensee's proposed alternative and has concluded that the licensee's proposed alternative as specified in Relief Request Nos. 3 and 4 may be authorized pursuant to Title 10 of the Code of Federal Regulations Section 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety. Further details on the bases for the NRC staff's conclusions are contained in the enclosed safety evaluation. If you have any questions regarding this issue, please feel free to contact Brenda Mozafari at (301) 415-2020.

Sincerely,

A handwritten signature in black ink that reads "Thomas H. Boyce" with a stylized flourish at the end.

Thomas H. Boyce, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Safety Evaluation

cc: Distribution via Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RISK-INFORMED INSERVICE INSPECTION PROGRAM

RELIEF REQUEST NUMBERS 3 AND 4

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT UNITS 3 AND 4

DOCKET NOS. 50-250 AND 50-251

1.0 INTRODUCTION

By letters dated December 7, 2008 (Reference 1 and 2), as supplemented in letter dated August 20, 2008 (Reference 3), Florida Power and Light (FPL) requested Nuclear Regulatory Commission (NRC) approval of alternate risk-informed inservice inspection (RI-ISI) selection and examination criteria to be used during Turkey Point's Unit 3 (TP3) and Unit 4 (TP4) fourth 10-year inspection interval (the fourth interval). The licensee's proposed RI-ISI programs are an alternative pursuant to Section 50.55a(a)(3)(i) of Title 10 of the Code of Federal Regulations (10 CFR). The scope of the alternate RI-ISI programs are applicable to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, 2001 Edition through the 2003 Addenda, Class 1 piping, Categories B-F and B-J piping welds.

By letters dated January 19, 2000 (Reference 4) and July 8, 2002 (Reference 5), FPL submitted similar requests for relief to implement an RI-ISI program for the remainder of TP3's and TP4's third 10-year interval (the third interval) respectively. The NRC staff approved FPL's RI-ISI programs for use during the third intervals by letters dated November 30, 2000 (Reference 6) and August 1, 2003 (Reference 7). The licensee is proposing to use RI-ISI programs based on the same methodology for the fourth intervals that began February 22, 2004, and ends February 22, 2014 for TP3 and April 15, 2004, and ends April 14, 2014 for TP4.

2.0 REGULATORY EVALUATION

Regulation 10 CFR 50.55a(g) requires that ISI of the ASME Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Code, "Rules for Inservice Inspection of Nuclear Power Plant Components" (hereinafter called Code) and applicable addenda, except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). The regulation 10 CFR 50.55a(a)(3) states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that the proposed alternatives would provide an acceptable level of quality and safety, or if the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Enclosure

The licensee stated that the proposed RI-ISI programs are developed consistent with the staff approved RI-ISI process and methodology delineated in Westinghouse Owners Group Topical Report WCAP-14572, Revision 1-NP-A, "Westinghouse Owners Group Application of Risk-Informed Methods to Piping Inservice Inspection Topical Report," (WCAP-TR) (ML042610469). The staff reviewed the proposed RI-ISI program based on guidance and acceptance criteria provided in the following documents:

- Regulatory Guide (RG) 1.174, Revision 1, *An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant Specific Changes to the Licensing Basis*, Revision 1, U.S. NRC, November 2002.
- NRC Regulatory Guide 1.178, Revision 1, *An Approach for, Plant-Specific, Risk-Informed Decisionmaking for Inservice Inspection of Piping*, U.S. NRC, September 2003.
- NUREG-0800, Chapter 3.9.8, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, *Risk-Informed Inservice Inspection of Piping*, U.S. NRC, September 2003.

### 3.0 TECHNICAL EVALUATION

The licensee is requesting relief that would permit continued use of the RI-ISI programs for the fourth 10-year ISI intervals instead of the ASME Section XI program. A RI-ISI program is acceptable and provides an acceptable level of quality and safety if it meets the five key principles of risk-informed decisionmaking, discussed in RGs 1.174 and 1.178. These principles are:

- 1) The proposed change meets the current regulations unless it is explicitly related to a requested exemption or rule change.
- 2) The proposed change is consistent with the defense-in-depth philosophy.
- 3) The proposed change maintains sufficient safety margins.
- 4) When proposed changes result in an increase in core damage frequency and/or large early release frequency, the increases should be small and consistent with the intent of the Commission's Safety Goal Policy Statement.
- 5) The impact of the proposed change should be monitored by using performance measurement strategies.

The first principle is met in these relief requests because an alternative ISI program may be authorized pursuant to 10 CFR 50.55a(3)(i) and, therefore, an exemption request is not required.

The second and third principles require assurance that the alternative program is consistent with the defense-in-depth philosophy and that sufficient safety margins are maintained, respectively. The licensee stated in References 1 and 2 that the methodology used to develop the fourth interval RI-ISI programs is identical to the risk-informed processes approved by the staff for use

at TP3 and TP4 in References 6 and 7. Assurance that the second and third principles are met is based on the application of the approved methodology and not on the particular inspection locations selected. Therefore, the staff concludes that the FPL's application of the methodology approved for use in the third interval to develop its proposed programs for the fourth interval provides assurance that the second and third principles are met.

The fourth principle requires an estimate of the change in risk. The change in risk is dependent on the number and location of inspections in the proposed ISI program compared to the number and location of inspections that would be performed using the requirements of ASME Section IX. In References 1 and 2, the licensee reported that a new change in risk evaluation was performed and the risk from the revised RI-ISI programs for TP3 and TP4 continue to remain lower when compared to the last deterministic Section XI inspection program. Relief was granted in References 6 and 7 from selected requirements in the 1989 edition of Section XI, which was the licensee's code of record when relief was requested. The licensee stated in Reference 1 that its code of record for the fourth interval is the ASME Section XI 1998 through 2000 Addenda. This change in the code of record might require changes to a few inspection locations for the fourth interval ASME inspection program from which the licensee is requesting relief. Minor changes in ASME locations may affect the risk calculation required by the RI-ISI methodology. However, the change in risk calculation uses simple bounding calculations to provide a concluding check of the acceptability of the proposed program. The accuracy of the change in risk calculations does not warrant developing a new ASME inspection program to be used briefly as a baseline program for the change in risk calculation and then discarded. Therefore, the staff finds the comparison of the risk estimate between the proposed RI-ISI program and the ASME program based on the code of record from which relief was granted in Reference 6 and 7 appropriate and acceptable. The reported result obtained by using the methodology in the WCAP-TR satisfies the change in risk guidelines in the WCAP-TR and, therefore, the fourth principle is met.

The fifth principle of risk-informed decisionmaking requires that the impact of the proposed change should be monitored by using performance measurement strategies. In References 1 and 2, the licensee stated that periodic evaluation and update of its RI-ISI programs were performed in conjunction with the end of the third interval. The licensee also described briefly the changes to each RI-ISI program and summarized the changes at the plants that caused the changes to the proposed programs. In Reference 3, the licensee indicated that it used Revision 7 of its dual unit PRA model in March 2007, and summarized several updates that had been made to this PRA model. These evaluations are consistent with FPL's description of its living program approved by the staff in References 6 and 7 and demonstrate that the RI-ISI program is being periodically updated which satisfies the fifth principle's primary goal to ensure that no adverse safety degradation occurs because of the changes to the licensing basis.

Based on the above discussion, the staff concludes that the five key principles of risk-informed decision making are satisfied by the licensee's proposed third 10-year RI-ISI programs, and, therefore, concludes that the proposed program for the fourth 10-year ISI interval is acceptable.

#### 4.0 CONCLUSIONS

Based on the information provided in the licensee's submittals, the staff has determined that the proposed alternative satisfies the five key principles of risk-informed decisionmaking. Satisfying these principles demonstrates that the proposed alternative provides an acceptable level of

quality and safety, and therefore the proposed alternatives may be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the fourth 10-year ISI inspection interval at Turkey Point Unit 3 and Unit 4.

## 5.0 REFERENCES

1. Letter from William Jefferson, Jr. (FPL), to NRC, dated December 17, 2007, transmitting "Turkey Point Unit 3, Docket No. 50-250, Relief Request No. 3 Risk-Informed Inservice Inspection Program."
2. Letter from William Jefferson, Jr. (FPL), to NRC, dated December 17, 2007, transmitting "Turkey Point Unit 4, Docket No. 50-251, Relief Request No. 4 Risk-Informed Inservice Inspection Program."
3. Letter from William Jefferson, Jr. (FPL), to NRC, dated August 22, 2008, transmitting "Turkey Point Units 3 and 4, Docket Nos. 50-250 and 50-251, Fourth 10 Year Interval Inservice Inspection Program, Response to Request for Additional Information for Risk-Informed Inservice Inspection (RI-ISI) Relief requests 3 and 4."
4. Letter from R. J. Hovey (Turkey Point Plant), to NRC, dated January 19, 2000, transmitting "Turkey Point Unit 3, Docket No. 50-250 Risk-Informed Inservice Inspection Program."
5. Letter from J. P. McElwain (Turkey Point Plant), to NRC, dated July 08, 2002, transmitting "Turkey Point Unit 4 Docket No. 50-251 Risk-Informed Inservice Inspection Program."
6. Letter from Richard P. Correia (NRC) to Thomas F. Plunkett (FPL), dated November 30, 2000, transmitting "Turkey Point Plant, Unit 3 - Relief Request Regarding Safety Evaluation of Risk-Informed Inservice Inspection Program (TAC No. MA8111)."
7. Letter from Allen G. Howe (NRC) to Thomas F. Plunkett (FPL), dated August 1, 2003, transmitting "Turkey Point Nuclear Plant, Unit 4 - Evaluation of Relief Request Concerning Risk-Informed Inservice Inspection (TAC No. MB5551).

Principle Contributor: Stephen Dinsmore

Date: December 9, 2008

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Mr. J. A. Stall  
Senior Vice President, Nuclear and  
Chief Nuclear Officer  
Florida Power and Light Company  
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Sincerely,  
**/RA B Moroney for/**  
Thomas H. Boyce, Chief  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-250 and 50-251

Enclosure: Safety Evaluation

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