

August 10, 2001

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: EVALUATION OF RELIEF REQUESTS NOS. 22 AND 26, RELATED TO THE
INSERVICE INSPECTION OF PRESTRESSED CONCRETE CONTAINMENTS
FOR TURKEY POINT PLANT, UNITS 3 AND 4 (TAC NOS. MB1735 AND
MB1736)

Dear Mr. Stall:

By letter dated April 12, 2001, as supplemented July 18, 2001, Florida Power and Light Company (the licensee) submitted Relief Request (RR) Nos. 22 and 26 related to the inservice inspection of Turkey Point Units 3 and 4 containments.

Based on its review of the information provided in your submittals, as documented in the enclosed safety evaluation, the staff concludes that for RR-22, the licensee's alternative provides an acceptable level of quality and safety and is, thus, authorized pursuant to 10 CFR 50.55a(a)(3)(i). For RR-26, performing the examinations as required by the Code will entail hardship or unusual difficulty without a compensating increase in the level of quality or safety, and the licensee's alternative will provide reasonable assurance of containment pressure integrity. On this basis, RR-26 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

Sincerely,

/RA/

Ronald W. Hernan, Acting Chief, Section 2
Project Directorate II
Division of Projects Licensing Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-250, 50-251

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION OF RELIEF REQUESTS NOS. 22 & 26
INSERVICE INSPECTION OF PRESTRESSED CONCRETE CONTAINMENT
TURKEY POINT UNITS 3 AND 4
FLORIDA POWER & LIGHT COMPANY
DOCKET NOS. 50-250AND 50-251

1. INTRODUCTION

In the *Federal Register* dated August 8, 1996 (61 FR 41303), the Nuclear Regulatory Commission (NRC) amended its regulations to incorporate by reference the 1992 edition with 1992 addenda of Subsections IWE and IWL of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code). Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containment), and Class MC (metallic containment) of light-water cooled power plants. The amended rule which became effective on September 9, 1996, required the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may propose alternatives to or submit a request for relief from the regulatory requirements pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Sections 50.55a(a)(3) or (g)(5).

By letter dated April 12, 2001, Florida Power & Light Company (FPL or the licensee), submitted Relief Request Nos. (RRs) 22 and 26, related to the examination of pressure-retaining bolts and seals and gaskets of the pressure-retaining components of the containments (Ref. 1). By letter dated July 18, 2001, the licensee supplemented the April 12, 2001, submittal. This evaluation addresses the merits of the RRs in terms of the requirements in 10 CFR 50.55(a)(3).

2. EVALUATION

2.1 RR-22

Code Requirements from which the Relief is Requested

Table IWE-2500-1, Examination Category E-G, of ASME Section XI, 1992 Edition, with 1992 Addenda requires torque or tension testing on bolted connections that have not been disassembled and reassembled during the inspection interval. Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested the relief from the required Bolt torque or tension test of the bolted connections as specified in Table IWE-2500-1, Category E-G, Item E8.20, of the 1992 Edition, with 1992 Addenda of ASME Section XI.

Basis for Relief Request

The licensee provided the following information as its basis for requesting the relief. "Bolt torque or tension testing is required on all bolted connections that have not been disassembled and reassembled during the inspection interval. Determination of the torque or tension values would require that the bolting be un-torqued and then re-torqued or re-tensioned. The performance of the 10 CFR 50 Appendix J Type B test itself proves that the bolt torque or tension remains adequate to provide a leak rate that is within acceptable limits. The torque or tension value of bolting only becomes an issue if the leak rate becomes excessive. Once a bolt is torqued or tensioned, it is not subject to dynamic loading that could cause it to experience significant change. Verification of torque or tension values on bolted joints that are proven adequate through Appendix J testing and visual inspection is adequate to demonstrate that design function is met. Torque or tension testing is not required on any other ASME Section XI Class 1, 2, or 3 bolted connections or their supports as a part of the Inservice Inspection program. This examination requirement was deleted from the 1998 edition of ASME Section XI. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

Alternative Examinations

1. Exposed surfaces of bolted connections shall be visually examined in accordance with the requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10.
2. Bolted connections shall meet the pressure test requirements of Table IWE-2500-1, Examination Category E-P, All Pressure Retaining Components, Item E9.40.
3. A general visual examination of the entire containment once each inspection period shall be conducted in accordance with 10 CFR 50.55a(b)(2)(x)(E).

Staff Evaluation

In general, for metal-to-metal bolted connections, the staff recognizes that periodic bolt torque testing may not be necessary in order to provide assurance of the integrity of the containment pressure boundary. However, in order to ensure proper clamping forces, licensees should check the torque on bolts after certain repairs or modifications or after the connections are subjected to vibratory loadings. In response to the staff's question on when the licensee will confirm the adequacy of bolt-torque, the licensee stated that: (1) for access penetrations, the adequacy of torque is verified as required by a procedure, when access penetrations are opened for outage access, repair or maintenance prior to being placed in service, and (2) for non-access penetrations, the adequacy of torque is verified as required by a procedure or a work order when the penetrations are opened for repair or maintenance prior to being placed back in service (Ref. 2). The staff finds that the licensee's proposed alternative provides reasonable assurance of containment pressure integrity.

Conclusion

The licensee's proposed alternative to the requirements of IWE-2500, Table IWE-2500-1, Category E-G, Item 8.20 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the first 10-year interval of the Containment Inservice Inspection Program on the basis that it provides an acceptable level of quality and safety.

2.2 RR-26

Code Requirements from which the Relief is Requested

Table IWE-2500-1, Examination Category E-D, of ASME Section XI, 1992 Edition, with 1992 Addenda requires Visual Examination (VT-3) of containment seals. Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee requested relief from the required Visual Examination (VT-3) of the seals and gaskets as specified in Table IWE-2500-1, Category E-D, Items E5.10 and E5.20, of the 1992 Edition, with 1992 Addenda of ASME Section XI and gaskets.

Basis for Relief

The licensee provided the following information as its basis for requesting the relief. "Seals and gaskets receive a 10 CFR 50 Appendix J test. As noted in 10 CFR 50 Appendix J, the purpose is to measure leakage of containment or penetrations whose design incorporates resilient seals, gaskets and sealant compounds, and electrical penetrations fitted with flexible metal seal assemblies. Examinations of seals and gaskets require the joints, which are proven adequate through Appendix J testing to be disassembled. For electrical penetrations, this would involve a pre-maintenance Appendix J test, determination of cables at electrical penetrations if enough slack is not available, disassembly of the joint, removal and examination of the seals and gaskets, re-assembly of the joint, re-termination of the cables if necessary, post maintenance testing of the cables, and a post maintenance Appendix J test of the penetration. The work required for the Containment Hatches would be similar except for the determination, re-termination, and testing of cables. This imposes a risk that equipment could be damaged. The 1992 Edition, 1993 Addenda, of Section XI recognizes that disassembly of joints to perform these examinations is not warranted. Examination Category E-D was modified to state that sealed or gasket connections need not be disassembled solely for performance of examinations. However, without disassembly, most of the surface of the seals and gaskets would be inaccessible. For those penetrations that are routinely disassembled, a Type B test is required upon final assembly and prior to start-up. Since the Type B test will assure the leak tight integrity of primary containment, the performance of the visual examination would not increase the level of safety or quality. This examination requirement was deleted from the 1998 Edition of ASME Section XI. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety."

Alternative Examination

The leak tightness of seals and gaskets will be tested in accordance with 10 CFR Part 50, Appendix J. No additional alternatives to the visual examination, VT-3, of the seals and gaskets will be performed.

Staff Evaluation

If a licensee is using Option A of Appendix J, the staff can stipulate the periodicity of performing Type B and Type C testing, and thereby confirm that the condition of seals and gaskets associated with the containment penetrations will be periodically monitored. However, when a licensee is using the performance-based Option B of Appendix J, the Nuclear Energy Institute guidelines, as endorsed by Regulatory Guide 1.163, would permit the licensee to perform Type B tests at an interval of as long as 120 months, and Type C tests at an interval of as long as 60 months. To understand the licensee's procedure under the proposed alternative, the staff requested information regarding the time-interval at which the licensee would ensure the integrity of the seals and gaskets of the bolted penetrations. In response, the licensee stated that: "The seals and gaskets of bolted penetrations are examined by a Type B or Type C local leak-rate test prior to any maintenance that could affect containment integrity in order to establish an as-found condition of the penetration. Prior to re-assembly, the seals and gaskets are examined, and if necessary replaced by maintenance personnel. After the penetration is re-assembled, an as-left test is performed to ensure that the penetration leakage meets the administrative limits. Plant-procedures establish the maximum frequency based on acceptable performance at once every 60 months." (Ref. 2)

If plant procedures as indicated in the response are properly implemented, the staff finds that the proposed alternative will provide adequate means of ensuring the integrity of seals and gaskets of the pressure retaining penetrations of the Turkey Point containments.

Disassembling components for the sole purpose of inspecting seals and gaskets places an undue hardship on the licensee and does not offer a compensating increase in the level of quality and safety. Reasonable assurance of the functionality and integrity of the containment penetration seals and gaskets will be provided by the licensee's alternative to perform testing in accordance with 10 CFR Part 50, Appendix J.

Conclusion

The proposed alternative to the requirements of IWE-2500, Table IWE-2500-1, Category E-D, Item numbers E5.10 and E5.20 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the first 10-year interval of the Containment Inservice Inspection Program. Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3. SUMMARY

Based on the information provided in the relief requests and the additional information provided by the licensee in response to the request for additional information (RAI), the staff concludes that for RR-22, the licensee's alternative provides an acceptable level of quality and safety and is,

thus, authorized pursuant to 10 CFR 50.55a(a)(3)(i). For RR-26, performing the examinations as required by the Code will entail hardship or unusual difficulty without a compensating increase in the level of quality or safety, and the licensee's alternative will provide reasonable assurance of containment pressure integrity. On this basis, RR-26 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

REFERENCES

1. Letter from R.J. Hovey (FPL) to NRC, "Relief Requests No. 22 and No. 26, Turkey Point Unit 3 and 4 Containments," April 12, 2001.
2. Letter from R.J. Hovey (FPL) to NRC, "Response to Request for Additional Information, Relief Requests No. 22 and No. 26, Turkey Point Unit 3 and 4 Containments," July 18, 2001.

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Date: August 10, 2001

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