



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

REQUESTS FOR RELIEF NO. 20 FOR

FLORIDA POWER AND LIGHT

TURKEY POINT, UNITS 3 & 4

DOCKET NUMBERS 50-250 AND 50-251

1.0 INTRODUCTION

Inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class MC and CC components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by Title 10, Code of Federal Regulations (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the U.S. Nuclear Regulatory Commission (NRC, Commission) pursuant to 10 CFR 50.55a(g)(6)(i). It states in 10 CFR 50.55a(a)(3) that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), Commission may grant relief and may impose requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed. The containment inservice inspection program for Turkey Point Units 3 and 4 was prepared to meet the requirements of Subsection IWE and IWL of the 1992 Edition, 1992 Addenda, of the ASME Code, Section XI.

Pursuant to 10 CFR 50.55a(g)(6)(ii)(B), for ASME Code Class MC and CC components (including integral attachments of MC and metallic liners of CC components), licensees shall expedite the inservice inspection requirements of Subsection IWE and Subsection IWL of the 1992 Edition with the 1992 Addenda and complete the first inspection by September 9, 2001. It is stated in 10 CFR 50.55a(g)(6)(ii)(B)(1) that the inservice examinations specified for the first period of the first inspection interval in Subsection IWE of the 1992 Edition and addenda as modified in 10 CFR 50.55a(b)(2)(x) shall serve the same purpose for operating plants as the

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ENCLOSURE

preservice examination. It is stated in 10 CFR 50.55a(g)(6)(ii)(B)(2) that licensees are allowed to implement the inservice examinations which correspond to the number of years of operation which are specified in Subsection IWL of the 1992 Edition and addenda as modified in 10 CFR 50.55a(b)(2)(ix) and shall serve the same purpose for operating plants as the preservice examination specified for plants not yet in operation.

By letter dated September 7, 1999, Florida Power and Light submitted Relief Request No. 20, Revision 1, to the NRC as an alternative to the Section XI requirements for IWE/IWL pursuant to 10 CFR 50.55a(a)(3). The NRC staff's evaluation of the licensee's proposed relief for Turkey Point Units 3 and 4 follows.

2.0 EVALUATION

A. Request for Relief No. 20, Table IWL-2500-1, Examination Category L-B, Items L2.30, L2.40, and L2.50, Unbonded Post-Tensioning System

Code Requirement: Examination Category L-B, Item L2.30 requires anchorage hardware and surrounding concrete to receive a VT-1 visual examination in accordance with IWA-2211 extending 2 feet from the edge of the bearing plate.

Examination Category L-B, Item L2.40 requires the corrosion protection medium to be examined in accordance with IWL-2525.

Examination Category L-B, Item L2.50 requires the amount of free water in the end anchorages to be documented in accordance with IWL-2524.2 and examined for pH by IWL-2525.2(b).

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3), the licensee proposed an alternative to Code requirements to examine the accessible end of the exempted tendons in accordance with IWL-2524 and IWL-2525, and tendons that are substituted for exempted tendons shall be examined in accordance with IWL requirements.

Licensee's Basis for Proposed Alternative (as stated):

"The examinations of the proposed substitute tendons provides a total number of tendons in excess of tendons required by IWL and sufficient information to assess the performance of the tendon system subject to similar environmental conditions and prestressing requirements.

"The main purpose of examinations that would be performed during an outage (IWL-2425 and IWL-2525) would be to look for signs of corrosion in the tendon anchorage components and to assess the condition of the corrosion prevention medium. During scheduled tendon inspections, these examinations are performed at many randomly selected tendons, and only relatively few tendons in the sample are expected to be considered exempted due to personnel safety concerns. For example, during the 25th year tendon inspection at Turkey Point, tendon anchorage components were examined at 35 tendon ends on Unit 3 and 39 tendon ends on unit 4, and only two tendon ends on each unit were exempted due to personnel safety concerns (one end of tendons 1D8 and 42H71 on Unit 3, and one end of tendons 35H79 and 51H42 on unit 4).

"Based on the number of tendons in the inaccessible area versus accessible tendons, it is statistically probable that up to three tendons on each unit may be exempt in any inspection period. This represents only 15% of the total number of tendons likely to be examined. The population of tendons that are non-exempt, plus the alternative examinations listed in Section V, provide sufficient information to assess the performance of the entire system given that each tendon is subject to similar environmental conditions and prestressing requirements.

"To date, no significant anomalies have been noted with respect to corrosion of the tendon wires, anchorage components, or the corrosion prevention medium, in the general tendon population. The area considered inaccessible is not subject to any unique conditions and selecting substitute tendons as close as possible to the exempt tendons will provide equivalent information as discussed above. Note that several tendons located in the exclusion zone above the main steam platforms were examined during past inspections, and the results of these inspections were consistent with the results of tendons inspected at other locations. The results of inspections performed in 1992 for unit 3 tendons 35H51, 35H52 and 35H53, and Unit 4 tendons 35H38 through 35H42 and 2D24, are tabulated on pages 9 through 13. These tendons are located from elevation 76'-3" and up, and above the main steam platform which is at elevation 71'-7".

"The results of the corrosion and grease inspections were satisfactory and several of the tendon lift-off forces were found to be below the acceptance criteria. While it is recognized that lift-off force acceptance criteria used in those earlier tests were too high, the discrepant condition affected all tendons on a generic basis and was not specific to a unique location. The issue was resolved by performing a Containment Reanalysis which demonstrated that sufficient prestressing will be available for the current licensed life of the units (References FPL Submittal L-95-050 and NRC SER [Safety Evaluation Report] dated November 29, 1995).

"Based on the preceding, the inspection of exempted tendons during outages in accordance with IWL-2521.1(c) is a burden without commensurate benefit and the proposed alternative examinations will provide an acceptable level of quality and safety."

Staff Evaluation: To comply with 10 CFR 50.55a(g)(6)(ii)(B), licensees must complete the inservice inspection requirements for reinforced concrete and post-tensioning systems of Class CC components, which corresponds to the number of years of operation that are specified in subsection IWL. The Code allows exemptions from examination requirements of IWL-2000 provided that the specific conditions for exemption are met. The licensee, in accordance with IWL-1220(a), has determined that certain tendon end anchorages are exempt from particular examination requirements of IWL-2000. IWL-1220(a) states that tendon end anchorages that are inaccessible are exempt from the requirements of IWL-2000, subject to the requirements of IWL-2521.1. Subparagraph IWL-2521.1(c) states each exempted tendon shall be examined in accordance with IWL-2524 and IWL-2525 to the extent that the end anchorages of the exempt tendon are accessible either during operation or at an outage.

The licensee proposes to examine the accessible end of the exempted tendons in accordance with IWL-2524 and IWL-2525 and not examine the inaccessible end even when the inaccessible end becomes accessible during an outage. The licensee stated that it would provide and examine substitute tendons for exempted tendons in accordance with IWL

requirements, and, in addition, provide an additional tendon for each exempted tendon beyond IWL requirements for examination in accordance with IWL-2524 and IWL-2525.

In accordance with 10 CFR 50.55a(a)(3), the licensee requested relief from the Code-required examination. The licensee noted that its previous containment inspection program did not reveal any significant anomalies, and conducting the inspection in accordance with IWL-2521.1(c) would result in hardship without a compensating increase in the level of quality and safety.

The staff does not fully agree with the licensee that completion of the required examinations on exempted tendon end anchorages represents a hardship when the inaccessible end of the tendon anchorages becomes accessible during the outage. However, the licensee's alternative examination provides more stringent requirements than IWL requirements by providing examination of additional tendon anchorages exposed to a similar environment in close proximity to the randomly selected tendon that has been exempted due to personnel safety concerns. Therefore, the staff concludes that the examination of the accessible end anchorage of the exempted tendon, selection of substitute tendons for examination in accordance with IWL requirements, and examination of additional tendon end anchorages in accordance with IWL-2524 and IWL-2525 provide an acceptable level of quality and safety.

3.0 CONCLUSION

The licensee's alternative proposed in Relief Request 20 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that it provides an acceptable level of quality and safety.

Principal Contributor: Gregory P. Hatchett, NRR

Date: October 20, 1999

Mr. T. F. Plunkett
Florida Power and Light Company

TURKEY POINT PLANT

cc:

M. S. Ross, Attorney
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Attorney General
Department of Legal Affairs
The Capitol
Tallahassee, Florida 32304

Mr. Robert J. Hovey, Site
Vice President
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

Plant Manager
Turkey Point Nuclear Plant
Florida Power and Light Company
9760 SW. 344th Street
Florida City, FL 33035

County Manager
Miami-Dade County
111 NW 1 Street, 29th Floor
Miami, Florida 33128

Mr. Steve Franzone
Licensing Manager
Turkey Point Nuclear Plant
9760 SW. 344th Street
Florida City, FL 33035

Senior Resident Inspector
Turkey Point Nuclear Plant
U.S. Nuclear Regulatory Commission
9762 SW. 344th Street
Florida City, Florida 33035

Mr. John Gianfrancesco
Manager, Administrative Support
and Special Projects
P.O. Box 14000
Juno Beach, FL 33408-0420

Homestead, Florida 33090

Mr. William A. Passetti, Chief
Department of Health
Bureau of Radiation Control
2020 Capital Circle, SE, Bin #C21
Tallahassee, Florida 32399-1741

Mr. Rajiv S. Kundalkar
Vice President - Nuclear Engineering
Florida Power & Light Company
P.O. Box 14000
Juno Beach, FL 33408-0420

Mr. Joe Myers, Director
Division of Emergency Preparedness
Department of Community Affairs
2740 Centerview Drive
Tallahassee, Florida 32399-2100