

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

January 19, 2011

Mr. Mano Nazar Executive Vice President and Chief Nuclear Officer Florida Power and Light Company P.O. Box 14000 Juno Beach, Florida 33408-0420

### SUBJECT: TURKEY POINT, UNIT 3 - SAFETY EVALUATION FOR RELIEF REQUEST NO. 9 REGARDING VISUAL EXAMINATION OF LINER REPAIR WELD DURING POST-REPAIR PRESSURE TEST (TAC NO. ME4946)

Dear Mr. Nazar:

By letter dated October 27, 2010 (Agencywide Document and Management System (ADAMS) Accession No. ML103130032), Florida Power & Light Company (the licensee), submitted Relief Request (RR) No. 9 for authorization of a proposed alternative for implementation during the current (2010) Turkey Point, Unit 3 maintenance and refueling outage. Specifically, the licensee proposed a VT-1 visual examination of the Class CC containment liner pressure boundary repair weld, prior to and following the post-repair leakage pressure test, as an alternative to the requirement of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Subsection IWE, Sub-article IWE-5240, to perform a detailed visual examination during the post-repair pressure test. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety.

In its letter dated October 27, 2010, the licensee requested approval of the proposed alternative by November 4, 2010. The Nuclear Regulatory Commission (NRC) staff evaluated the licensee's submittal and the proposed alternative pursuant to 10 CFR 50.55a(a)(3)(i) and determined that the proposed alternative to the requirements of ASME Code, Section XI, Subsection IWE, Sub-article IWE-5240 would provide an acceptable level of quality and safety. Therefore, on October 29, 2010 (ADAMS Accession No. ML103050225), the NRC verbally authorized the licensee's use of RR No. 9. The enclosed safety evaluation is a written confirmation of the verbal authorization.

M. Nazar

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If you have any questions regarding this issue, please feel free to contact Jason Paige at (301) 415-5888.

Sincerely,

Trange Out for

Douglas A. Broaddus, Chief Plant Licensing Branch II-2 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Docket No. 50-250

Enclosure: Safety Evaluation

cc w/encl: Distribution via Listserv



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

# SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

# **RELIEF REQUEST NO. 9 REGARDING VISUAL**

## EXAMINATION OF CONTAINMENT LINER REPAIR

# **FLORIDA POWER & LIGHT**

# TURKEY POINT, UNIT 3

### DOCKET NO. 50-250

### 1.0 INTRODUCTION

By letter dated October 27, 2010 (Agencywide Document and Management System (ADAMS) Accession No. ML103130032), Florida Power & Light Company (the licensee), submitted Relief Request No. 9 for authorization of a proposed alternative for implementation during the current (2010) Turkey Point, Unit 3 maintenance and refueling outage. Specifically, the licensee proposed a VT-1 visual examination of the Class CC containment liner pressure boundary repair weld, prior to and following the post-repair leakage pressure test, as an alternative to the requirement of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, Subsection IWE, Sub-article IWE-5240, to perform a detailed visual examination during the post-repair pressure test. Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety.

In its letter dated October 27, 2010, the licensee requested approval of the proposed alternative by November 4, 2010. The Nuclear Regulatory Commission (NRC) staff evaluated the licensee's submittal and the proposed alternative pursuant to 10 CFR 50.55a(a)(3)(i) and determined that the proposed alternative to the requirements of ASME Code, Section XI, Subsection IWE, Sub-article IWE-5240 would provide an acceptable level of quality and safety.

During a conference call on October 29, 2010 (ADAMS Accession No. ML103050225), the NRC informed the licensee of its decision. Subsequently, the NRC pursuant to 10 CFR 50.55a(a)(3)(i) verbally authorized the licensee's use of Relief Request No. 9. This safety evaluation documents the NRC staff's evaluation of relief request No. 9, and is a written confirmation of the decision made by the NRC to authorize the licensee's relief request.

### 2.0 REGULATORY EVALUATION

Paragraph 10 CFR 50.55a(g)(4) requires that inservice inspection (ISI), repair and replacement of the pressure retaining components of the steel (Class MC) and concrete (Class CC) containments meet the requirements set forth in Section XI of the ASME Code and Addenda that are incorporated by reference in Paragraph (b) of 10 CFR 50.55a, subject to the limitation

listed in paragraph (b)(2)(vi), and modifications listed in paragraphs (b)(2)(viii) and (b)(2)(ix) of the regulations.

It states in 10 CFR 50.55a(a)(3)(i) that proposed alternatives to the requirements of paragraphs (c), (d), (e), (f), (g) and (h) of the section (i.e., 10 CFR 50.55a "Code and Standards") or portions thereof may be used when authorized by the Director of the Office of Nuclear Reactor Regulation, provided the licensee demonstrates that the proposed alternatives would provide an acceptable level of quality and safety. The licensee has submitted Relief Request No. 9, pursuant to 10 CFR 50.55a(a)(3)(i), seeking authorization of a proposed alternative to the requirement of paragraph 10 CFR 50.55a(g)(4), with regard to post-repair visual examination of its containment liner.

### 3.0 TECHNICAL EVALUATION

### 3.1 ASME Code Component Affected

The affected corriponent is the metallic (steel) liner of the Turkey Point Unit 3 Class CC concrete containment. Pursuant to 10 CFR 50.55a(g)(4), the containment liner is subject to the Turkey Point Unit 3 ASME Code Section XI Inservice Inspection (ISI) Program and Section XI Repair/Replacement Program, and specifically the examination requirements in IWE-2500 and Table IWE-2500-1.

### 3.2 Applicable Code Edition and Addenda

Pursuant to 10 CFR 50.55a(g)(4)(ii), the applicable code-of-record for the fourth (current) containment ISI interval for Turkey Point Unit 3, for the affected component of this relief request, is Subsection IWE of the ASME Code, Section XI, 2001 Edition with the 2003 Addenda, subject to the regulatory modifications in subparagraphs10 CFR 50.55a(b)(2)(ix)(A), (b)(2)(ix)(B), and (b)(2)(ix)(F) through (b)(2)(ix)(I), as applicable. The NRC staff notes that the regulatory modifications in (b)(2)(ix)(F) and (b)(2)(ix)(G) regarding the visual examination method (VT-1, VT-3) to be used and the qualification of personnel performing these visual examinations, directly apply to this relief request.

#### 3.3 Applicable Code Requirement from which Relief is Requested

Article IWE-5000 of ASME Code, Section XI, Subsection IWE, "System Pressure Tests," sub-article IWE-5240, "Visual Examination," states:

During the pressure test required by IWE-5220, a detailed visual examination (IWE-2310) shall be performed on areas affected by repair/replacement activities.

Applying the condition in subparagraph 10 CFR 50.55a(b)(2)(ix)(G) to the affected component of this relief request, the VT-1 visual examination method shall be used in applying Subsection IWE, where detailed visual examination is specified in the Code and shall be performed by personnel qualified in accordance with subparagraph 10 CFR 50.55a(b)(2)(ix)(F).

### 3.4 Licensee's Reason for Request

During the 2010 maintenance and refueling outage for Turkey Point Unit 3, a scheduled visual examination of the containment liner plate in the sump area revealed significant corrosion in a localized region of the vertical wall section, immediately adjacent to the concrete floor. Further investigation, with visual and volumetric inspection methods, revealed that the corrosion degradation initiated on the inside surface of the liner plate and that localized repairs were required.

The planned repairs include removing the degraded portion of the liner plate and in-place welding a replacement plate, measuring approximately 4 inches high by 32 inches long. Following the repair, a pneumatic leakage test is required to be performed in accordance with sub-article IWE-5221.

A local leak rate test (LLRT) is planned to be performed on the repaired area. The method of implementation of this LLRT requires the installation of a test device on the test area that would make the areas on the inside surface affected by the repair activities inaccessible during the pressure test. The outside surface of the repair area is also inaccessible as the liner is backed by concrete.

The licensee requested relief from the direct visual examination requirement specified in sub-article IWE-5240 to be performed during the leakage test required by sub-article IWE-5221.

#### 3.5 Licensee's Proposed Alternative and Duration

In accordance with 10 CFR 50.55a(a)(3)(i), the licensee requested approval of an alternative to ASME Code Section XI, sub-article IWE-5240, to perform a detailed [VT-1] visual examination of the repair area during the post-repair pressure test. As the alternative, the licensee proposed to perform a VT-1 visual examination of the affected area both prior to and following the local leak rate test.

Visual examination (VT-1) prior to the performance of the local leak rate testing provides assurance that the affected area has been properly prepared for testing and no abnormalities exist in the affected area. The local leak rate test will provide an accurate and direct method of assuring the leak-tight integrity of the repair welds. Post leak rate test visual examination (VT-1) provides assurance that the tested area is free of abnormalities that may be exposed by the local leak rate test.

The required nondestructive examination of the repair will provide additional assurance of the integrity of the repair welds. The proposed visual examination (VT-1) provides an adequate level of quality and safety prior to and following the local leak rate test, even though the concrete side of the repair is inaccessible.

The licensee requested authorization of the proposed alternative to support the containment liner repairs being made during the current 2010 Turkey Point Unit 3 maintenance and refueling outage.

#### 3.6 NRC Staff Evaluation

After completing the repair of the locally degraded containment liner and the required nondestructive examination of the repair welds, the licensee has proposed an alternative to perform a VT-1 visual examination of the affected area, both prior to and following the local leak rate test. This alternative is in lieu of the IWE-5240 requirement to perform a detailed [VT-1] visual examination during the leakage test. Based on the information in the relief request, the post-repair local leak rate test method being implemented will provide an accurate and direct measure of the leakage integrity of the repair welds. Therefore, even though the test device will cover the inside surface of the repaired area and the outside surface is backed by concrete, the test method is capable of detecting leakage without relying on direct visual examination during the test.

Further, the proposed VT-1 examination prior to the leakage test will ensure proper preparation of the repair area for testing and will identify and address surface abnormalities, if any, in the affected area. The proposed VT-1 examination following the leakage test will identify and address any surface abnormalities that may be exposed by the leakage test. Also, the VT-1 method of examination (when performed by a qualified VT-1 examiner) proposed by the licensee would be compliant with the regulatory modifications in 10 CFR 50.55a(b)(2)(ix)(F) and 10 CFR 50.55a(b)(2)(ix)(G) specifically applicable to this relief request.

Based on the above, the NRC staff finds that the licensee's proposed alternative provides an acceptable level of quality and safety.

#### 4.0 <u>CONCLUSION</u>

As set forth above, the NRC staff has determined that the licensee's proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i), and is in compliance with the ASME Code's requirements. Therefore, the NRC staff authorizes the proposed alternative at Turkey Point Unit 3 for the duration of the current 2010 Turkey Point Unit 3 maintenance and refueling outage.

All other ASME Code, Section XI requirements for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Insurance Inspector.

Principal Contributor: George Thomas

Date: January 19, 2011

M. Nazar

If you have any questions regarding this issue, please feel free to contact Jason Paige at (301) 415-5888.

Sincerely,

### /RA by TOrf for/

Douglas A. Broaddus, Chief Plant Licensing Branch II-2 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

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### ADAMS Accession No.: ML110050443

\*By memo dated

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