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

August 3, 2009

Mr. Jon A. Franke, Vice President
Crystal River Nuclear Plant (NA2C)
Attn: Supervisor, Licensing &
Regulatory Programs (NA1B)
15760 W. Power Line Street
Crystal River, Florida 34428-6708

SUBJECT: CRYSTAL RIVER NUCLEAR PLANT, UNIT NO. 3 – CORRECTION LETTER FOR RELIEF REQUEST 08-001-MX, REVISION 0, REGARDING INITIAL EXAMINATION OF TENDONS AFFECTED BY POST-TENSIONING SYSTEM REPAIR/REPLACEMENT ACTIVITIES (TAC NO. ME0227)

Dear Mr. Franke,

By letter dated December 10, 2008, as supplemented by letter dated April 16, 2009, Florida Power Corporation (the licensee) submitted Relief Request 08-001-MX, Revision 0 (RR 08-001-MX) for the fourth 10-year inservice inspection (ISI) interval at Crystal River Unit 3 Nuclear Generating Plant (CR-3). The Nuclear Regulatory Commission (NRC) staff evaluated the information provided in the licensee's relief request and concluded that the proposed alternative to the requirements of Table IWL 2521-2 of the American Society of Mechanical Engineers Code is acceptable because it will provide an acceptable level of quality and safety.

By letter dated July 24, 2009, the NRC authorized the implementation of RR 08-001-MX for the CR-3 fourth 10-year ISI interval, pursuant to paragraph 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations.*

Subsequent to the issuance, Mr. Phil Rosean of your staff informed the NRC staff of pagination errors on Pages 3 and 4 of the safety evaluation (SE). The errors relate to repeating two lines on Page 3 and missing another two lines at the top of Page 4. In addition, the NRC staff noticed that a period was missing from the end of a sentence on Page 2 of the SE. The corrected SE Pages 2, 3 and 4 are enclosed.

The NRC regrets any inconvenience that this may have caused. If you have any questions regarding this matter, please contact me at (301) 415-1447.

Sincerely,

Farideh E. Saba

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-302

Enclosure: As stated

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The Nuclear Regulatory Commission (NRC) staff's review addressed the ability of the licensee to maintain an acceptable level of quality and safety and to ensure integrity of the containment post tensioning system when the initial inspection of vertical tendons affected by the post tensioning repair/replacement activities is performed 2 years (plus or minus 3 months) in lieu of 1 year (plus or minus 3 months) following the repair/replacement activities.

2.0 REGULATORY REQUIREMENTS

Paragraph 50.55a(g) of Title 10 of the *Code of Federal Regulations* (10 CFR) specifies that ISI of nuclear power plant components shall be performed in accordance with the requirements of the ASME Code, Section XI. Pursuant to10 CFR 50.55a(a)(3), 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.

Subsection IWL-2521.2, "Tendon Affected by Repair/Replacement Activities," and Table IWL-2521-2 of ASME Code Section XI, 2001 Edition including Addenda through 2003, require augmented examination of tendons affected by post tensioning system repair/replacement activities. Table IWL-2521-2 requires an initial inspection of tendons affected by post-tensioning system repair/replacement activities within 1 year (plus or minus 3 months) following the completion.

3.0 TECHNICAL EVALUATION

3.1 ASME Code Components Affected

ASME Class CC Components, Vertical Post-Tensioning Tendons (23V1, 23V2, 23V3, 34V1 through 34V24, 45V22, 45V23, and 45V24)

3.2 Applicable Code Edition and Addenda

Current Code of Record at CR-3 for the fourth 10-year containment ISI interval is the ASME Code, Section XI, 2001 Edition through the 2003 Addenda.

3.3 Applicable ASME Code Requirement

Table IWL-2521-2 of the current Code of Record requires an initial examination of tendons affected by post-tensioning system repair/replacement activities within 1 year (plus or minus 3 months) following the completion of repair/replacement activities.

3.4 Licensee Proposed Alternative and Basis for Use

In RR 08-001-MX, as an alternative to Table IWL-2521-2 of ASME Code, Section XI, the licensee requested to perform the initial inspection of vertical tendons affected by the steam generators replacement activities at 2 years (plus or minus 3 months) following repair/replacement activities in lieu of 1 year (plus or minus 3 months). This alternative is proposed for the fourth 10-year ISI interval which began on August 14, 2008.

The licensee stated, in its letter dated December 2008, that (1) 15 ISI examinations have been completed to date and the existing vertical tendons have met all the post-tensioning test and examination acceptance criteria, (2) the planned repair/replacement activities affecting the vertical tendons will not result in any unique condition that may subject the vertical tendons to a different potential for structural or tendon deterioration, and (3) the affected vertical tendons will be retensioned to the original tendon seating force (0.7 times the ultimate tendon strength) and will be subject to prestress losses smaller than those for the original tendons. As such, this alternative provides an acceptable level of quality and safety, and does not adversely impact the health and safety of the public.

3.5 NRC Staff's Evaluation

The NRC staff identified areas in which additional information was necessary to complete the evaluation of the licensee's proposed alternative. Therefore, the staff issued a request for additional information (RAI) to obtain further information from the licensee relative to the magnitude of vertical tendon prestressing force and the inspection results of previous tendon surveillances.

In its response, dated April 16, 2009, to the NRC staff's RAI provided the required vertical tendon force, according to the CR-3 current licensing basis, and the minimum predicted force for the population of the affected vertical tendons at the time of the R17 in 2011 as 1149 kilopounds (kips) and 1512 kips, respectively.

Considering the above, the NRC staff determined that the minimum predicted prestressing force in the affected vertical tendons is approximately 30 percent higher than the design basis required tendon force. Therefore, the NRC staff determined that there will be sufficient vertical prestressing force to satisfy the containment structure design basis requirements.

In its response to the NRC staff's RAI, the licensee also provided the inspection results for the past eight tendon surveillances performed from 1977 through 2007. Vertical tendons 23V2, 34V1, 34V4, 34V6, and 34V19 that will be affected by the steam generator repair/replacement activities were selected for inspection during previous tendon surveillances. The results of lift-off tests, tendon wire inspections, and tendon end anchorage inspections were generally satisfactory.

The NRC staff requested information relative to any indication of water intrusion or corrosion in the vertical tendons. In its response to the staff's RAI, the licensee stated that during the second tendon surveillance performed in 1980, tendon 56V1 was found to have approximately 15 gallons of water. The water was drained and the grease was replaced. The licensee added that during previous tendon surveillances performed from 1981 through 2007, with the exception of finding a few drops of water in the horizontal tendon 51H25 field-end, there was no evidence of water found in any end caps of inspected horizontal and vertical tendons. The NRC staff concluded that the licensee adequately responded the NRC staff's RAI regarding indication of water intrusion or corrosion in the vertical tendons.

On the basis of its review of the information provided in the licensee's Relief Request 08-001-MX, the NRC staff finds that (1) the results of past inspections of a sample of vertical tendons that will be affected by the steam generator repair/replacement activities were generally satisfactory; (2) the minimum predicted prestressing force in the affected vertical tendons, at the time of the proposed deferred initial inspection, is sufficient to satisfy the containment structure design basis vertical prestress force; and (3) there was no indication of water intrusion in the vertical tendons from 1981 through 2007. Therefore, the staff finds the licensee's proposed alternative to the requirements of Table IWL 2521-2 of ASME Code, Section XI, 2001 Edition through the 2003 addenda to postpone the initial inspection of the vertical tendons affected by the steam generator replacement activities by one year to be acceptable.

4.0 CONCLUSION

Based on the information provided in the licensee's submittals dated December 10, 2008, and April 16, 2009, the NRC staff concludes that the licensee's proposed alternative to the requirements of Table IWL 2521-2 of ASME Code, Section XI, 2001 Edition through the 2003 addenda is acceptable because it will provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) the implementation of the alternative is authorized for the CR-3 fourth 10-year in service inspection interval which began on August 14, 2008. This authorization is limited to those components described in Section 3.1.

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

Principal Contributor: Farhad Farzam

Date: July 24, 3009

The NRC regrets any inconvenience that this may have caused. If you have any questions regarding this matter, please contact me at (301) 415-1447.

Sincerely,

/RA/

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
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