



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

June 3, 2015

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy
P.O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE PLANT UNIT NO. 2 – FOURTH 10-YEAR INSERVICE INSPECTION
INTERVAL RELIEF REQUEST NO. 3, REVISION 0 (TAC NO. MF4398)

Dear Mr. Nazar:

By letter dated June 30, 2014, as supplemented by letter dated October 20, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14203A006 and ML14329A027, respectively), Florida Power & Light Company (the licensee) submitted Relief Request (RR) No. 3 to the U.S. Nuclear Regulatory Commission (NRC) proposing an alternative to certain American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code), Section XI requirements at the St. Lucie Plant Unit No. 2 (SL-2). This RR pertains to the requirements of ASME Code, Section XI for ultrasonic inspection qualifications of weld overlays at SL-2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), the licensee proposed to use the performance demonstration initiative program as an alternative to the requirements within ASME Section XI, 2007 Edition with 2008 Addenda, Appendix VIII, Supplement 11, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds," at SL-2 for the fourth 10-year inservice inspection (ISI) interval on the basis that the proposed alternative would provide an acceptable level of quality and safety.

By *Federal Register* notice 79 FR 65776, dated November 5, 2014, which became effective on December 5, 2014, the paragraph headings in 10 CFR 50.55a were revised. Accordingly, RRs that had been previously covered by 10 CFR 50.55a(a)(3)(i) are now covered under the equivalent 10 CFR 50.55a(z)(1), and RRs that had been previously covered by 10 CFR 50.55a(a)(3)(ii) are now covered under the equivalent 50.55a(z)(2).

The NRC staff has reviewed RR No. 3 and determined that the alternative method proposed by the licensee in RR No. 3 will provide 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(z)(1). Therefore, the NRC authorizes the use of RR No. 3 during the fourth 10-year ISI interval at SL-2, which began on August 8, 2013, and ends on August 7, 2023.

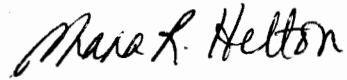
All other ASME Code, Section XI requirements for which relief was not specifically requested and authorized in the subject proposed alternative remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

M. Nazar

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If you have any questions, please contact Robert L. Gladney at 301-415-1022 or Robert.Gladney@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Shana R. Helton". The signature is written in a cursive style with a large, stylized initial 'S'.

Shana R. Helton, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure:
Safety Evaluation

cc w/enclosure: Distribution via Listserv



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOURTH 10-YEAR INSERVICE INSPECTION INTERVAL

REQUEST FOR RELIEF NO. 3, REVISION 0

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT UNIT NO. 2

DOCKET NO. 50-389

1.0 INTRODUCTION

By letter dated June 30, 2014, as supplemented by letter dated October 20, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14203A006 and ML14329A027, respectively), Florida Power & Light Company (the licensee) submitted Relief Request (RR) No. 3 to the U.S. Nuclear Regulatory Commission (NRC) for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code) Section XI for ultrasonic inspection qualifications of weld overlays.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(a)(3)(i), the licensee proposed to use the Performance Demonstration Initiative (PDI) Program as an alternative to the requirements within ASME Section XI, 2007 Edition 2008 Addenda, Appendix VIII, Supplement 11, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds," at the St. Lucie Plant Unit No. 2 (SL-2) for the fourth 10-year inservice inspection (ISI) interval on the basis that the proposed alternative would provide an acceptable level of quality and safety.

2.0 REGULATORY EVALUATION

By *Federal Register* notice 79 FR 65776, dated November 5, 2014, which became effective on December 5, 2014, the paragraph headings in 10 CFR 50.55a were revised. Accordingly, RRs that had been previously covered by 10 CFR 50.55a(a)(3)(i) are now covered under the equivalent 10 CFR 50.55a(z)(1), and RRs that had been previously covered by 10 CFR 50.55a(a)(3)(ii) are now covered under the equivalent 50.55a(z)(2).

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components.

Enclosure

However, 10 CFR 50.55a(z) states, in part, that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Based on the analysis of the regulatory requirements and subject to the following technical evaluation, the NRC staff finds that regulatory authority exists to authorize the proposed alternative pursuant to 10 CFR 50.55a(z)(1).

3.0 TECHNICAL EVALUATION

ASME Code Component(s) Affected

Class 1 Pressure Retaining Piping Welds subject to ultrasonic examination using procedures, personnel, and equipment qualified by demonstration to ASME Section XI, 2007 Edition with 2008 Addenda, Appendix VIII, Supplement 11, are affected.

Applicable Code Requirement

The code of record for SL-2 for the fourth 10-year ISI interval is the 2007 Edition with 2008 Addenda of ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components."

The requirements for qualifying ultrasonic procedures, personnel, and equipment for weld overlay examinations are described in ASME Code, Section XI, Appendix VIII Supplement 11, "Qualification Requirements for Full Structural Overlaid Wrought Austenitic Piping Welds."

Proposed Alternative

Pursuant to 10 CFR 50.55a (a)(3)(i) (retitled 10 CFR 50.55a(z)(1)), the licensee is requesting approval to use the PDI Program for weld overlay inspection qualifications as an alternative to the requirements within ASME Section XI, 2007 Edition 2008 Addenda, Appendix VIII, Supplement 11.

Reason for Request

SL-2 has full structural weld overlays over several welds. The previous safety evaluation covering the inspection qualification requirements for weld overlays, dated December 12, 2007 (ADAMS Accession No. ML073400022) expired at the end of the third 10-year ISI interval at SL-2. A new authorization to use the PDI weld overlay qualification program is required for continued inspections of the weld overlays.

The Licensee's Basis for Use

The licensee indicates that compliance with the proposed alternatives within this RR, compared to the 2007 Edition with 2008 Addenda of ASME Section XI, Appendix VIII, Supplement 11, will

provide an acceptable level of quality and safety for the qualification of equipment, procedures, and personnel for examinations of overlays.

Supplement 11 was written to cover the examination of weld overlay repairs of boiling water reactor recirculation piping welds. When Supplement 11 was written, stress corrosion cracking (SCC) had only been detected in the heat affected zones adjacent to welds. Therefore, Supplement 11 refers to the grading units intended to contain cracking in the original pipe as "base metal" grading units.

In pressurized-water reactors (PWRs), SCC occurs in the weld metal itself. To mitigate SCC in PWRs, overlays are being applied to welds. Therefore, it is now more appropriate to call the grading unit for the original piping an "inservice" grading unit, which is a broad enough term to encompass flaws in the base material or weld material. Since the term for grading units in the original piping was being changed to "inservice," it seemed appropriate to change the term for grading units intended to contain fabrication related discontinuities in the weld overlay (i.e., bonding and weld cleanliness) to "preservice." It is during the preservice inspection that these indications are expected to be discovered.

NRC Staff Evaluation

The licensee is proposing to use the PDI qualification program for weld overlay inspections in lieu of the requirements of ASME Code, Section XI, Appendix VIII, Supplement 11, on the basis that the PDI Program provides an acceptable level of quality and safety. A separate RR would be needed in order for the licensee to install optimized weld overlays. In the letter dated October 20, 2014, the licensee stated that it does not have any optimized overlays currently installed at SL-2.

To evaluate the licensee's stated basis for RR No. 3, the NRC staff performed a thorough review of the proposed PDI qualification program and Section XI, Appendix VIII, Supplement 11. An NRC staff review of the two programs has determined that the PDI Program for qualifying procedures, equipment, and personnel, as described in the relief, is very similar to ASME Code, Section XI, Appendix VIII, Supplement 11. For the qualification of full structural weld overlays, the primary differences between the Appendix VIII requirements and the PDI Program are administrative or semantic in nature, such as changing "base metal flaws" to "service-induced flaws." The PDI Program is also very similar to ASME Code Case N-653-1, "Qualification Requirements for Overlaid Piping Welds, Section XI, Division 1." The NRC staff has found the PDI Program and ASME Code Case N-653-1 to be of similar rigor to the ASME Code, Section XI requirements for full structural overlay inspections.

Based upon the NRC review of the PDI weld overlay inspection qualification program, the NRC has determined that using the PDI inspection qualification program in lieu of ASME Code, Section XI, Appendix VIII, Supplement 11, provides an adequate level of rigor to provide reasonable assurance that the procedures qualified under this program would be able to find fabrication flaws and service-induced flaws in the weld-overlaid piping.

4.0 CONCLUSION

As set forth above, the NRC staff concludes that the proposed alternative to use the PDI Program to qualify procedures, equipment, and personnel for ultrasonic inspections of weld overlays at SL-2 for the fourth 10-year ISI interval provides an acceptable level of quality and safety. Therefore, RR No. 3 is authorized for use pursuant to 10 CFR 50.55a(z)(1) during the fourth 10-year ISI interval at SL-2, which began on August 8, 2013, and ends on August 7, 2023.

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

Principal Contributors: Stephen E. Cumblidge
 Michael F. Farnan

Date: June 3, 2015

M. Nazar

- 2 -

If you have any questions, please contact Robert L. Gladney at 301-415-1022 or Robert.Gladney@nrc.gov.

Sincerely,

/RA/

Shana R. Helton, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-389

Enclosure:
Safety Evaluation

cc w/enclosure: Distribution via Listserv

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