From:	Mahoney, Michael
Sent:	Tuesday, April 5, 2022 7:08 AM
To:	Hess, Robert
Cc:	Mihalakea, Stavroula; Wrona, David; Mitchell, Matthew
Subject:	Verbal Authorization of Turkey Point Nuclear Plant Unit 3 - ICW Relief Request No. 10-II (EPID L-2022-LLR-0032)
Attachments:	Turkey Point RR No. 10-II Verbal Authorization Script (L-2022-LLR-0032) Redacted.pdf

Mr. Hess,

In accordance with NRR Office Instruction LIC-102, "Relief Request Reviews," the NRR staff provided verbal authorization on September 14, 2021 for Relief Request No. 10, Part II. By letter dated March 10, 2022, supplemented by letters dated March 29, 2022, and March 31, 2022, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22069B128, ML22088A319, and ML22091A309, respectively), Florida Power and Light Company proposed an alternative to requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4421 and Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(b)(2)(xxv), at the Turkey Point Nuclear Generating Unit No. 3. The proposed alternative (Relief Request No. 10, Part II) would install a proprietary repair device (restoration hardware assembly (RHA)) that will become the pressure boundary on the affected ASME Code pipe without removal of the degraded portion of piping.

The script read on April 4, 2022, that provides verbal authorization is attached (redacted version, the version containing proprietary information was transmitted to Stavy Mihalakea of your staff via the NRC's BOX – Enterprise File Synchronization and Sharing service). The NRC staff intends to follow-up this verbal authorization with a written safety evaluation within 150 days.

A copy of this email and attached verbal authorization will become publicly available in ADAMS, and I will provide the accession number to you.

Please let me know if you have any questions.

Thanks

Mike Mahoney
Project Manager, LPL2-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
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Hearing Identifier: NRR_DRMA
Email Number: 1587

Mail Envelope Properties (BLAPR09MB60172C4E68C317E267767C12E5E49)

Subject: Verbal Authorization of Turkey Point Nuclear Plant Unit 3 - ICW Relief Request No. 10-II (EPID L-2022-LLR-0032)
Sent Date: 4/5/2022 7:07:31 AM
Received Date: 4/5/2022 7:07:35 AM
From: Mahoney, Michael

Created By: Michael.Mahoney@nrc.gov

Recipients:
"Mihalakea, Stavroula" <Stavroula.Mihalakea@fpl.com>
Tracking Status: None
"Wrona, David" <David.Wrona@nrc.gov>
Tracking Status: None
"Mitchell, Matthew" <Matthew.Mitchell@nrc.gov>
Tracking Status: None
"Hess, Robert" <Robert.Hess@fpl.com>
Tracking Status: None

Post Office: BLAPR09MB6017.namprd09.prod.outlook.com

Files	**Size**	**Date & Time**
MESSAGE	1837	4/5/2022 7:07:35 AM
Turkey Point RR No. 10-II Verbal Authorization Script (L-2022-LLR-0032) Redacted.pdf	290572	

Options
Priority: Normal
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:

VERBAL AUTHORIZATION BY THE OFFICE NUCLEAR REGULATION

RELIEF REQUEST NO. 10 PART II

USE OF PERMANENT REPAIR DEVICE WITHOUT REMOVING DEGRADED PIPE

TURKEY POINT NUCLEAR GENERATING UNIT NO. 3

FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-250

APRIL 4, 2022

Technical Evaluation read by Matthew Mitchell, Chief of the Piping and Head Penetration Branch, Division of New and Renewed Licenses, Office of Nuclear Reactor Regulation

By letter dated March 10, 2022, supplemented by letters dated March 29, 2022, and March 31, 2022, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22069B128, ML22088A319, and ML22091A309, respectively), Florida Power and Light Company (the licensee) proposed an alternative to requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4421 and Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(b)(2)(xxv), at the Turkey Point Nuclear Generating Unit No. 3 (Turkey Point, Unit 3). The proposed alternative would install a proprietary repair device (restoration hardware assembly (RHA)) that will become the pressure boundary on the affected ASME Code pipe without removal of the degraded portion of piping. Note, proprietary information is denoted as bold text within double-brackets.

Previous verbal authorization on October 29, 2021 (ADAMS Accession No. ML21302A090) only approved the licensee's Relief Request No. 10 for the extension to use ASME Code Case N-513-4 beyond the allowed single operating cycle and until the completion and installation of the subject RHA on the unit's Intake Cooling Water (ICW) discharge spool piece prior to April 29, 2022. At that time the licensee stated they would submit a future supplemental request of the alternative repair method for NRC approval prior to its installation. The licensee's letter dated March 10, 2022, is the supplemental request (denoted as Relief Request No. 10 Part II) and provides information regarding the design, installation, examination, testing and monitoring of the RHA to be installed as a permanent repair for the remaining life of the plant.

Pursuant to 10 CFR 50.55a(z)(2), the licensee submitted Relief Request No. 10 Part II which requested to encapsulate the degraded spool piece with the RHA, leaving the degraded piping in place while the RHA becomes the pressure boundary of the ASME Code piping. The degraded spool piece is part of the ICW system, and its safety function is to remove heat load from the Component Cooling Heat Exchangers (CCHXs) during accident conditions to support both reactor heat removal and containment heat removal requirements. The leak is located in piping downstream of the CCHXs and downstream of the last isolation valve before returning water back to the discharge structure and the ultimate heat sink. The piping is made of cast iron material with a design temperature of 120 degrees Fahrenheit (°F) and operating pressure of 25 pounds per square inch gauge (psig).

The licensee has determined that performing an ASME Code-compliant repair/replacement on the degraded portion of ICW piping in accordance with ASME Code, Section XI, IWA-4000 represents a hardship or unusual difficulty without a compensating increase in the level of quality and safety. It is noted that the previous hardship in Relief Request No. 10, which the NRC authorized due to specific operational and repair risks based on the system function and materials of construction, still applies to this Relief Request No. 10 Part II. The operational risks were that the ASME Code-compliant repair options would require removing the CCHXs from service and providing temporary heat exchangers and temporary flow paths could impact cooling of the Turkey Point, Unit 3 Spent Fuel Pool. The repair risks associated with these options were related to the cast iron piping material and the likelihood of further damage caused by drilling and/or welding on the pipe.

The ICW system piping was constructed to the construction code for pressure piping United States of America Standards Institute (USAS) B31.1-1955 and was later reconciled to the code of record American National Standards Institute (ANSI)/ASME B31.1, 1973 Edition through Winter 1976 Addenda. Based on the safety significance and the construction code of record, the piping system is considered to be equivalent to ASME Code, Section III, Class 3. Accordingly, this piping is subject to repair/replacement requirements of ASME Code, Section XI, IWA-4000. The RHA replaces the pipe portion of the defective spool piece with a new corrosion resistant, gasketed pressure boundary that distributes all applied loads to the piping system by use of structural attachments, welds, and high-strength bolting. Therefore, the RHA is considered a permanent repair under the construction code of record, and is not a clamping device under ASME Code, Section XI, Appendix W for temporary repairs. The RHA meets all the design requirements for Turkey Point, Unit 3 construction code of record, including all design basis loads for this system which has a very low operating pressure of 25 psig. The adjacent piping, elbow, and valve 3-50-406 were evaluated to withstand the additional applied loads from the RHA. The RHA provides the pressure boundary and the structural integrity of the piping spool piece. Based on the licensee's evaluation, the defective straight pipe portion of the spool piece is not credited, does not contribute any structural integrity to the restored section of piping, and therefore does not have to be removed. Therefore, the licensee ensures that the structural integrity of the piping system continues to meet the construction code of record.

Bolting would be replaced with material resistant to saltwater corrosion. The RHA is constructed from material that is highly resistant to salt water. The RHA gaskets and the full penetration weld on the RHA will provide for primary pressure integrity and leak tightness of the repair. Attachment welds for the **[[**

]] from the RHA to the existing cast iron flanges. Welding is performed using the requirements of the construction code of record. The internal encapsulated area of degraded cast iron pipe spool piece will be filled with an approved sealant, Belzona, to protect the encapsulated surfaces of the cast iron pipe spool flange surfaces from saltwater corrosion. **[[**

]] The RHA is inspected and tested in accordance with the construction code of record and includes enhancements such as **[[**

]]

The RHA is constructed, examined, and tested (with enhancements) to the construction code of record to ensure structural and pressure boundary integrity of the installed repair.

To ensure pressure boundary and structural integrity, the licensee performed an analysis to determine a corrosion rate of the pipe spool piece flange and determined that the structural integrity will not be impacted for the proposed life of the repair. Enclosure 1 to Relief Request No. 10, Part II provides the corrosion assessment for the cast iron piping which used assumptions from tests with carbon steel which require confirmation through monitoring. In addition, as noted previously, gaskets form part of the pressure boundary, and may be subject to degradation. However, due to past experience of the degraded area, **[[**

]] Therefore, the licensee proposed that the RHA would be included in a system walkdown monitoring program. The monitoring program would consist of quarterly walkdowns for the first ten years, and monthly walk downs after ten years. This walkdown would ensure the corrosion rate, gasket life/degradation, and bolting integrity are monitored and that they are consistent with analysis of the RHA. Additionally, inservice inspections would include leak check of the RHA and a visual examination of all attachment welds every inspection period beyond the requirements of Section XI of the ASME Code. The licensee's inspections and monitoring of the RHA ensures the structural integrity of the piping system is still bounded by the analysis.

Based on the review of the information provided above, the NRC staff finds that there is reasonable assurance of adequate protection based on (1) the RHA designed to the construction code of record, (2) the adjacent piping being evaluated to withstand additional loads from the RHA, (3) use of corrosion resistant material and associated coatings to minimize corrosion from saltwater, (4) enhanced inspections and pressure testing of the RHA during construction and installation, (5) enhanced inservice inspections and monitoring ensuring the structural integrity requirements of ASME Code continue to be met, and (6) the very low operating pressure of the system.

Therefore, the NRC finds that Relief Request No. 10, Part II will provide reasonable assurance that structural integrity of the subject Turkey Point, Unit 3 ICW discharge piping and its intended safety function will be maintained in that the licensee will ensure the piping continues to meet the structural integrity requirements of the ASME Code. The NRC also finds that specific operational and repair risks based on the system function and materials of construction create an unusual, but valid, basis for establishing hardship with respect to implementing an ASME Code-compliant repair.

Authorization read by David Wrona, Chief of the Plant Licensing Branch II-2, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation

As Chief of the Plant Licensing Branch II-2, Office of Nuclear Reactor Regulation, I agree with the conclusions of the Piping and Head Penetration Branch.

The NRC staff concludes that the proposed alternative to install a proprietary repair device, or RHA, that will become the pressure boundary on the affected ASME Code pipe without removal of the degraded portion of piping will provide reasonable assurance of the piping structural integrity. The NRC staff finds that complying with the requirements of the ASME Code, Section XI would result in hardship or unusual difficulty without a compensating increase in the 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)(2).

Therefore, effective April 4, 2022, the NRC authorizes the use of the proposed Relief Request No. 10, Part II, at Turkey Point, Unit 3.

All other requirements in ASME Code, Section XI 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.

This verbal authorization does not preclude the NRC staff from asking additional clarification questions regarding the proposed alternative while subsequently preparing the written safety evaluation.

LIST OF ATTENDEES

APRIL 4, 2022, VERBAL AUTHORIZATION

TURKEY POINT NUCLEAR GENERATING UNIT NO. 3

FLORIDA POWER AND LIGHT COMPANY

NRC
Matthew Mitchell
David Wrona
John Honcharik
Mike Mahoney
Matthew Endress

Florida Power and Light Company
Robert Hess
David Stoia
Jerry Phillabaum
Stavroula Mihalakea
Tom Ruiz
Steve Catron
Michael Davis