



September 14, 2021

L-2021-182  
10 CFR 50.55a

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington DC 20555-0001

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555-0001

Re: Turkey Point Unit 3 and 4  
Docket Nos. 50-250 and 50-251  
Response to Request for Additional Information, Relief Requests 8 and 9 Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1), Extension of Inspection Interval for Turkey Point Unit 3 and Unit 4 Reactor Pressure Vessel Welds from 10 to 20 Years

References:

1. Florida Power & Light Company letter L-2021-107, Relief Request Number RR8 & RR9, Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1), Extension of Inspection Interval for Turkey Point Unit 3 and Unit 4 Reactor Pressure Vessel Welds from 10 to 20 Years, May 13, 2021 (ADAMS Accession No. ML21134A151)
2. NRC Email from Ms. Eva Brown to Ms. Stavroula Mihalakea, Turkey Point Units 3 and 4 - Request for Additional Information Concerning Relief Requests 8 and 9 (EPID L-2021-LLR-0038), dated September 1, 2021.


In Reference 1, Florida Power & Light Company (FPL) submitted relief requests 8 and 9 from the American Society of Mechanical Engineers Section XI Code (ASME Section XI Code) for the Turkey Point Units 3 and 4 Fifth 10-Year Inservice Inspection (ISI) Interval. The reliefs request to defer the Turkey Point units 3 and 4 volumetric examination for the reactor pressure vessel (RPV) full penetration pressure-retaining (Examination Category B-A and B-D) welds from the fifth interval in 2023 to the sixth interval in 2033, resulting in an approximate 10-year deferral. The relief requests were developed using the methodology defined in WCAP-16168-NP-A, Revision 3, "Risk-Informed Extension of the Reactor Vessel In-service Inspection Interval."

In Reference 2, the NRC Staff requested additional information specific to Turkey Point Unit 3 to complete their review. The enclosure to this letter provides the NRC's request for additional Information (RAI) and FPL's response.

This letter contains no new regulatory commitments or revisions to existing regulatory commitments

If you have any questions or require additional information, please contact Robert J. Hess, Licensing Manager, at (305) 246-4112.

Sincerely,

A handwritten signature in dark ink, consisting of a large, stylized 'R' followed by a horizontal line extending to the right.

Robert J. Hess  
Licensing Manager  
Turkey Point Nuclear Plant

Enclosure

cc: USNRC Regional Administrator, Region II, USNRC  
USNRC Senior Resident Inspector, USNRC, Turkey Point Nuclear Plant  
USNRC Project Manager, Turkey Point Nuclear Plant

**Response to Request for Additional Information (RAI)  
Relief Request Number RR8,  
Extension of Turkey Point Unit 3 RPV Welds from 10 to 20 Years**

**NRC RAI (NRC Email dated September 1, 2021):**

By letter dated May 13, 2021 (ADAMS Accession No. ML21134A151), Florida Power and Light Company (FPL or the licensee) requested an alternative from the requirements of the American Society of the Mechanical Engineers Boiler and Pressure Vessel, Division 1, Section XI (henceforth ASME Section XI) for Turkey Point Nuclear Generating Plant Units 3 and 4. The licensee's Code alternative proposed in Relief Request Nos. 8 and 9 (RR8 and RR9, respectively) requests NRC staff authorization to eliminate the performance of the Inservice inspection (ISI) volumetric examinations that are required to be performed on pressure retaining welds in the heads, flanges, and shells of the reactor pressure vessel (RPV) and on associated RPV-to-nozzle welds and nozzle inside radius locations (i.e., ASME Code Section XI Category B-A and B-D required examinations) during the ASME-defined fifth (5th) 10-Year ISI interval for Turkey Point Units 3 and 4. Instead, the licensee requests authorization to defer performance of these volumetric inspections until the sixth (6th) 10-year ISI interval for the units. If approved, the NRC staff's authorization of this ISI alternative will result in an alternate, 20-year ISI Interval for performance of these RPV component-specific ISI examinations, with the alternate interval which will end no later than 2033 for Unit 3, and no later than 2034 for Unit 4.

**Regulatory Basis**

In a safety evaluation dated July 6, 2011, the NRC staff approved the use of WCAP-16168-NP-A, Rev. 2, "Risk-Informed Extension of the Reactor Vessel In-Service Inspection Interval." Section 50.61a(e) of Title 10 to the *Code of Federal Regulations* (10 CFR), "Alternate fracture toughness requirements for protection against pressurized thermal shock," describes the allowable flaw distribution for embedded flaws and surface-breaking flaws that would be permitted for reactor pressure vessels (RPVs) that are at the pressurized thermal shock (PTS) screening limits in 10 CFR 50.61a. By monitoring flaw sizes in accordance with the criteria described in 10 CFR 50.61a(e), licensees are expected to ensure that their RPVs do not have flaws that invalidate the results of the WCAP 16168-NP-A probabilistic fracture mechanics (PFM) analyses. The following request for additional information (RAI) is needed to reach a conclusion that the licensee's proposed alternative achieves an acceptable level of quality and safety. [The NRC staff notes that Rev. 3 of the WCAP simply reflects the Rev. 2 NRC approval with additional approved incorporated comments].

**Issue**

Table 2 in RR8 of Enclosure 1 to the May 13, 2021 submittal (ADAMS Accession No. ML21134A151) states that the licensee has performed four volumetric ISI examinations of the RPV pressure retaining welds. The licensee identifies that one indication was detected within the inner 1/10th or inner 1 inch of the RPV wall thickness.

It is not evident whether the fourth volumetric ISI inspections of the welds containing this indication were the first inspections that revealed evidence of this flaw or re-inspections of the welds containing this flaw. The NRC staff seeks information relative to the risk-based assessments of this flaw that addresses whether any potential growth of this flaw is bounded by fatigue flaw growth assumptions and values used in the WCAP-16168-NP-A, Rev. 3 methodology.

### Request

Confirm whether the fourth volumetric ISI inspections were the first ISI inspections that detected this flaw and whether there is any site-specific flaw growth data for this flaw evaluated in Table 2 of RR8. If there is applicable site-specific flaw growth data for this flaw, identify the limiting site-specific flaw growth value that was calculated for this flaw evaluated in Table 2.

### **FPL Response:**

FPL confirms that the fourth volumetric ISI inspections performed in 2014 were the first ISI examinations that detected the flaw indication evaluated in Table 2 of RR8. There is no site-specific flaw growth data for the flaw indication evaluated in Table 2 of RR8 since this flaw indication is indicative of a fabrication flaw typical of a small slag inclusion.

### **References:**

1. Florida Power & Light Company letter L-2021-107, Relief Request Number RR8 & RR9, Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1), Extension of Inspection Interval for Turkey Point Unit 3 and Unit 4 Reactor Pressure Vessel Welds from 10 to 20 Years, May 13, 2021 (ADAMS Accession No. ML21134A151)
2. Westinghouse Report, WCAP-16168-NP-A, Revision 3, "Risk-Informed Extension of the Reactor Vessel In-service Inspection Interval," October 2011 (ADAMS Accession Number ML11306A084).
3. NRC Email from Ms. Eva Brown to Ms. Stavroula Mihalakea, Turkey Point Units 3 and 4 - Request for Additional Information Concerning Relief Requests 8 and 9 (EPID L-2021-LLR-0038), dated September 1, 2021.
4. Pressurized Water Reactor Owners Group (PWROG) Letter OG-10-238, "Revision to the Revised Plan for Plant Specific Implementation of Extended Inservice Inspection Interval per WCAP-16168-NP, Revision 1, "Risk-Informed Extension of the Reactor Vessel In-Service Inspection Interval." PA-MS-0120," July 12, 2010 (ADAMS Accession Number ML11153A033)
5. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2007 Edition through 2008 Addenda, American Society of Mechanical Engineers, New York