From:	Marlayna Doell
To:	Michael Schultheis
Cc:	k.steffic@holtec.com; k.miller1@holtec.com; Justin Poole; Ilka Berrios
Subject:	Request for Additional Information Re: Relief Request Number RR 5-12 - Full Structural Weld Overlays for Primary Coolant System - L-2025-LLR-0080
Date:	Thursday, November 6, 2025 9:33:00 AM
Attachments:	Palisades RR 5-12 RAIs - FINAL.pdf

Mike,

By letter dated August 20, 2025 (Agencywide Documents Access and Management System (ADAMS) Accession ML25232A195), Holtec Palisades, LLC (the licensee) requested approval for the application of full structural weld overlays on the primary coolant system hot leg, cold leg and pressurizer nozzle dissimilar metal welds fabricated with nickel-based Alloys 82 and 182. The licensee also submitted a supplement dated September 16, 2025 (ML25260A638). The licensee requested the proposed alternative in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(1) based on its determination that the proposed alternative provides the acceptable level of quality and safety.

On October 3, 2025, the NRC staff sent the licensee DRAFT RAIs to ensure that the questions are understandable, the regulatory basis is clear, there is no proprietary information contained in the RAIs, and to determine if the information was previously docketed. The licensee determined that no clarification call was needed and agreed upon a response date of November 28, 2025. The attached is the final version of the RAIs. These RAIs will be put in ADAMS as a publicly available document.

Thanks,
Marlayna

Marlayna Vaaler Doell
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REQUEST FOR ADDITIONAL INFORMATION

PROPOSED ALTERNATIVE TO ASME SECTION XI CODE FOR FULL STRUCTURAL WELD OVERLAYS OF PRIMARY COOLANT SYSTEM HOT LEG, COLD LEG, AND PRESSURIZER NOZZLE DISSIMILAR METAL WELDS (RELIEF REQUEST NUMBER RR 5-12)

PALISADES NUCLEAR PLANT

HOLTEC PALISADES, LLC

DOCKET NO. 50-255

By letter dated August 20, 2025 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML25232A195), Holtec Palisades, LLC (also called Holtec Palisades or the licensee), requested approval for the application of full structural weld overlays on the primary coolant system hot leg, cold leg and pressurizer nozzle dissimilar metal welds fabricated with nickel-based Alloys 82 and 182. The licensee also submitted a supplement dated September 16, 2025 (ML25260A638). The licensee requested the proposed alternative in accordance with 10 CFR 50.55(z)(1) based on its determination that the proposed alternative provides the acceptable level of quality and safety. To complete its review of the proposed alternative, the NRC staff requests additional information as follows.

Regulatory Basis

Alternatives to the requirements of paragraphs (b) through (h) of Section 50.55a, "Codes and standards," of Title 10 of the *Code of Federal Regulations* (10 CFR), or portions thereof, may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. A proposed alternative must be submitted and authorized prior to implementation. The licensee must demonstrate that its request meets one of two criteria: (1) the proposed alternative would provide an acceptable level of quality and safety in accordance with paragraph 10 CFR 50.55a(z)(1); or (2) compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety in accordance with paragraph 10 CFR 50.55a(z)(2).

RAI 1

Attachment 2 (Framatome Document 51-9392688-000) of the licensee's supplement dated September 16, 2025, indicates that the following documents describe the specific approaches, code provisions and demonstrations of the weld overlay sizing calculations, residual stress analyses, crack growth analyses, and ASME Code, Section III stress and fatigue analyses for the hot leg surge line weld overlay in detail (References: (1) Framatome 32-9373588-000, "Palisades Hot Leg Surge Nozzle FSWOL Calculation," November 2024; (2) Framatome 32-9377011-000, "Palisades Hot Leg Surge Nozzle FSWOL Weld Residual Stress Analysis," November 2024; (3) Framatome 32-9390082-000, "Palisades Hot Leg Surge Nozzle FSWOL Crack Growth Appendix C Analysis," June 2025; and (4) Framatome 32-9383549-000, "Palisades Hot Leg Surge Nozzle Full Structural Weld Overlay Section III Analysis," April 2025).

Even though these documents address the design analyses for the hot leg surge line weld overlay that is one of the weld overlays in the scope of the proposed alternative, these analyses can also serve as examples that describe the design analyses for the other weld overlays in the scope of the proposed alternative. Please provide these documents containing the design analyses referenced above.

RAI 2

Attachment 2 (Framatome Document 51-9392688-000) of the licensee's supplement dated September 16, 2025, indicates that except for the analysis performed for the pressurizer pilot-operated relief valve (PORV and also called power-operated relief valve) nozzle, where the original weld was partially removed and replaced in a previous repair, the weld residual analyses simulate a conservatively estimated 50 percent through-wall 360 degree full circumferential inner diameter repair at the Alloy 82/182 weld attaching the nozzles to the safe ends.

Explain why the conservatively estimated 50 percent through-wall inner diameter repair is not simulated in the residual stress analysis for the pressurizer PORV nozzle. As part of the response, discuss how the residual stress analysis for the pressurizer PORV nozzle considers the potential effects of the previous repair on the residual stress.

RAI 3

With respect to the residual stress analyses for weld overlay design, discuss, if any, residual stress measurement data, other analysis results (e.g., benchmark or validation results), or conservatisms associated with the analyses that support the adequacy of the analyses. As part of the response, clarify whether the residual stress analyses use the approaches in EPRI MRP-287, EPRI MRP-317, or NUREG-2162/2228.

RAI 4

Describe (a) the crack growth rate models for fatigue and stress corrosion cracking used in the crack growth analyses for the weld overlay design and (b) the adequacy of the crack growth rate models for the weld overlay design analyses.

RAI 5

The proposed alternative does not include the licensee's plan to submit to the NRC staff the following information within a certain time period after the post-installation ultrasonic examination of the full structural weld overlays: (1) a listing of indications detected in the overlaid weld material; (2) the disposition of all indications using the acceptance criteria of ASME Code, Section XI, IWB-3514; and (3) a discussion of any repairs to the weld overlay or base material and the reason for the repair.

Please discuss the licensee's plan to submit the above information regarding the results of the post-installation ultrasonic examination of the weld overlays and the dispositions of the examination results.