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Docket No. 50-364

NEL-01-0164

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

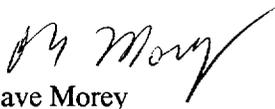
**Joseph M. Farley Nuclear Plant - Unit 2**  
**Inservice Inspection Relief Request Number RR-46**

Ladies and Gentlemen:

In accordance with the provisions of 10 CFR 50.55a, Southern Nuclear Operating Company (SNC) is requesting NRC approval of the enclosed Relief Request RR-46 for Farley Nuclear Plant Unit 2. Approval is requested by September 1, 2002 to support ongoing ISI activities.

There are no commitments contained in this letter. If you have any questions, please advise.

Respectfully submitted,

  
Dave Morey

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**Attachments:**

- Attachment 1** Request for Relief RR-46
- Attachment 2** Weld Listing
- Attachment 3** Figure for CCW/CW Scan
- Attachment 4** Figure for Axial Scan

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U. S. Nuclear Regulatory Commission

cc: Southern Nuclear Operating Company  
Mr. L. M. Stinson, General Manager

U. S. Nuclear Regulatory Commission, Washington, D. C.  
Mr. F. Rinaldi, Licensing Project Manager – Farley

U. S. Nuclear Regulatory Commission, Region II  
Mr. L. A. Reyes, Regional Administrator  
Mr. T. P. Johnson, Senior Resident Inspector – Farley

**ATTACHMENT 1**

**Request for Relief RR-46**

SOUTHERN NUCLEAR OPERATING COMPANY  
FARLEY UNIT 2  
ISI EXAMINATIONS per the 1989 ASME CODE  
REQUEST FOR RELIEF NO. RR-46

- I. System/Component(s) for Which Relief is Requested: The Steam Generator nozzle to safe-end welds and the safe-end to elbow welds on the primary side and the feedwater nozzle to shell welds on the secondary side. This request applies to the new steam generators installed during refueling outage 2R14. Specific welds are identified in Attachment 2.
- II. Code Requirement: The 1989 Edition of ASME Section XI, Category B-F, Item No. B5.70, Table IWB-2500-1 of ASME Section XI requires a volumetric and surface examination of pressure retaining dissimilar metal welds. Category B-J, Item No. B9.11, requires a volumetric and surface examination of pressure retaining circumferential welds. The applicable examination volume for both categories is shown in Figure IWB-2500-8. Section XI, Article I-2200 applies to these welds and requires that ultrasonic examinations of vessel welds, less than or equal to two inches in thickness, and all piping welds be conducted in accordance with Appendix III. Appendix III-3230 requires full coverage of the examination volume from four directions. ASME Section XI Appendix III, Supplement 4, requires that when scanning for reflectors oriented transverse (perpendicular) to the weld seam in austenitic and dissimilar metal welds, that examinations be performed in two directions along the axis of the weld such that a minimum area from 1/2-inch from one side of the weld crown to 1/2-inch from the other side of the weld crown (including the crown) be examined.
- Category C-B, Item No. C2.21, requires a volumetric and surface examination of nozzle to shell welds in vessels. The applicable examination volume is shown in Figure IWC-2500-4(a). Section XI, Article I-2100 requires ultrasonic examination of vessel welds greater than 2 inches in thickness to be conducted in accordance with Article 4 of Section V as supplemented by Table I-2000-1. Article T-441.3.2.5 requires scanning with angle beam search units both at right angles to the weld axis and along the weld axis. Wherever feasible, each examination shall be performed in two directions. T-441.3.2.6 and T-441.3.2.7 describe the scanning requirements for reflectors oriented parallel and transverse to the weld.
- III. Code Requirement for Which Relief is Requested: Complete coverage cannot be obtained for the code required examination volume.
- IV. Basis for Relief: Complete volumetric examination of these welds requires access from both sides of the weld; however, examination is limited on the B-F welds (Nozzle to safe end) by the nozzle geometry and on the B-J welds (safe end to elbow) by the weld geometry configuration due to the difference in thickness of the safe end and the elbow (safe end taper). Composite coverage for the B-F and B-J welds is calculated to be 75% and 71% respectively. Typical examination volume coverages are shown in Attachment 3 (for clockwise/counter-clockwise scans on the weld and adjacent base material) and Attachment 4 (for axial scans). For the B-J weld, due to the cast material on the elbow, a refracted longitudinal (1T) wave was used. Maximum coverage was obtained by utilizing transducer wedges that compensated for the taper, from the safe end side.

Complete examination of each Category C-B nozzle to shell weld requires access from both sides of the weld. Access from the nozzle side of the weld is limited by nozzle geometry, however, and only a partial examination is possible. Composite coverage is calculated to be 75%.

- V. Alternate Examination: None. Coverage, to the maximum extent practical, has been obtained.
- VI. Justification for Granting Relief: The examinations identified herein are being conducted to the fullest extent practical. Various techniques were evaluated for the piping welds such as bouncing the ultrasound off the inside surface; however, they are not practical for use on cast stainless steel components or with the use of refracted longitudinal wave techniques.

Compliance with Code coverage requirements which would require SNC to refabricate the nozzles to perform the Code required examinations is impractical; therefore, approval should be granted pursuant to 10 CFR 50.55a(g)(6)(i).

- VII. Implementation Schedule: This request for relief is applicable to the PSI and ISI examinations performed from December 1, 1997 to November 30, 2007 using the 1989 Edition of Section XI.
- VIII. Relief Request Status: This relief request is being submitted for the new steam generators, which were installed during refueling outage 2R14. RR-7, which was approved for the original steam generators, is now being withdrawn. This request for relief is awaiting NRC approval.

**ATTACHMENT 2**

**Weld Listing**

**ATTACHMENT 2  
FARLEY 2 RR-46**

<b>ASME Section XI Category/Item No.</b>	<b>Identification No. / Description</b>	<b>ASME Code Requirement</b>	<b>Limitation</b>	<b>Approximate Percentage</b>
B-F / B5.70	APR1-4100-25RDM Safe-end to Inlet Nozzle	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-F / B5.70	APR1-4100-26RDM Outlet Nozzle to Safe- end	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-F / B5.70	APR1-4200-25RDM Safe-end to Inlet Nozzle	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-F / B5.70	APR1-4200-26RDM Outlet Nozzle to Safe- end	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-F / B5.70	APR1-4300-23RDM Safe-end to Inlet Nozzle	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-F / B5.70	APR1-4300-24RDM Outlet Nozzle to Safe- end	Surface and Volumetric	One-sided examination due to nozzle configuration	PT - 100 % UT - 75 %
B-J / B9.11	APR1-4100-4R Elbow to Safe-end	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %
B-J / B9.11	APR1-4100-5R Safe-end to Elbow	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %
B-J / B9.11	APR1-4200-4R Elbow to Safe-end	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %
B-J / B9.11	APR1-4200-5R Safe-end to Elbow	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %
B-J / B9.11	APR1-4300-4R Elbow to Safe-end	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %
B-J / B9.11	APR1-4300-5R Safe-end to Elbow	Surface and Volumetric	Taper of Safe-End	PT - 100 % UT - 71 %

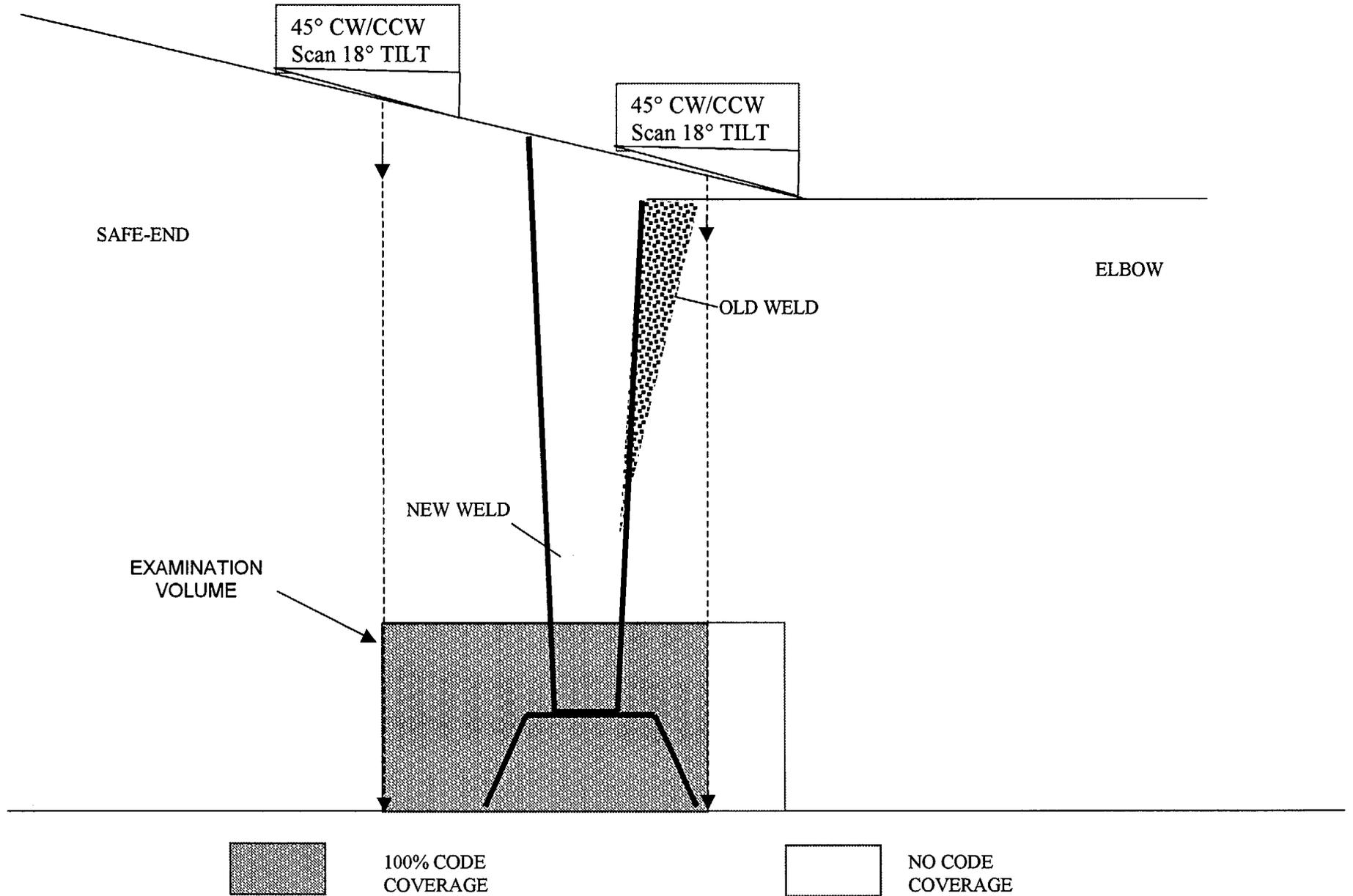
ATTACHMENT 2  
FARLEY-2 RR-46

<b>ASME Section XI Category/Item No.</b>	<b>Identification No. / Description</b>	<b>ASME Code Requirement</b>	<b>Limitation</b>	<b>Approximate Percentage</b>
C-B / C2.21	APR2-3100-8 Steam Generator to Feedwater Nozzle Weld	Surface and Volumetric	One-sided examination due to nozzle configuration	MT - 100 % UT - 75 %
C-B / C2.21	APR2-3200-8 Steam Generator to Feedwater Nozzle Weld	Surface and Volumetric	One-sided examination due to nozzle configuration	MT - 100 % UT - 75 %
C-B / C2.21	APR2-3300-8 Steam Generator to Feedwater Nozzle Weld	Surface and Volumetric	One-sided examination due to nozzle configuration	MT - 100 % UT - 75 %

**ATTACHMENT 3**

**Figure for CCW/CW Scan**

ATTACHMENT 3  
FARLEY 2 Reactor Coolant System B-J Safe-End / Elbow weld (CW/CCW SCANS)



**ATTACHMENT 4**

**Figure for Axial Scan**

ATTACHMENT 4  
FARLEY 2 Reactor Coolant System B-J Safe-End / Elbow weld (Axial Scans)

