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NLS2012064
June 22, 2012

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

Subject: Response to Nuclear Regulatory Commission Request for Additional Information Re: Request for Relief for the Fourth 10-Year Inservice Inspection Program (TAC No. ME7875)
Cooper Nuclear Station, Docket No. 50-298, DPR-46

References:

1. Letter from Lynnea E. Wilkins, U. S. Nuclear Regulatory Commission, to Brian J. O'Grady, Nebraska Public Power District, dated June 11, 2012, "Cooper Nuclear Station - Request for Additional Information Re: Request for Relief for the Fourth 10-Year Inservice Inspection Program (TAC No. ME7875)"

2. Letter from Brian J. O'Grady, Nebraska Public Power District, to the U.S. Nuclear Regulatory Commission, dated January 16, 2012, "10 CFR 50.55a Request RI-07, Revision 0"

Dear Sir or Madam:

The purpose of this letter is for Nebraska Public Power District to submit a response to requests for additional information (RAI) from the Nuclear Regulatory Commission (NRC) (Reference 1). The RAI requested information in support of NRC's review of a request for relief (RI-07) from certain in-service inspection (ISI) requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (Code) for Cooper Nuclear Station (CNS) pursuant to Section 50.55a of Title 10 of the Code of Federal Regulations (Reference 2).

Responses to the specific RAI questions are provided in the Attachment to this letter. No regulatory commitments are made in this submittal.

The information submitted by this response to the RAI does not change the conclusions or the basis of the evaluation provided by Reference 2.

A047
NRR

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If you have any questions concerning this matter, please contact David Van Der Kamp, Licensing Manager, at (402) 825-2904.

Sincerely,

Brian J. O'Grady
Vice President – Nuclear and
Chief Nuclear Officer

/em

Attachment: Response to Nuclear Regulatory Commission Request for Additional Information Re: Request for Relief for the Fourth 10-Year Inservice Inspection Program (TAC No. ME7875)

cc: Regional Administrator w/ attachment
USNRC - Region IV

Cooper Project Manager w/ attachment
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachment
USNRC - CNS

NPG Distribution w/o attachment

CNS Records w/ attachment

Attachment

Response to Nuclear Regulatory Commission Request for Additional Information Re: Request for Relief for the Fourth 10-Year Inservice Inspection Program (TAC No. ME7875)

Cooper Nuclear Station, Docket No. 50-298, DPR-46

NRC Question #1

Please describe the materials of construction of components RHR-CA-2A and RHR-CB-1A including the base metal and weld materials.

Response #1

a. RHR-CA-2A
   (1) Vessel Material = SA-516-70
   (2) Distributor Ring Material = SA-516-70
   (3) Weld Material = E7018 Stick Weld

b. RHR-CB-1A
   (1) Nozzle Material = SA-106-B
   (2) Shell Material = SA-516-70
   (3) Weld Material = E7018 Stick Weld

NRC Question #2

Please clarify the difference in technique between the examinations conducted during the previous ISI interval and those conducted during the current interval. In addition, please explain why the coverage percentages differed so much between intervals.

Response #2

Previous exams were performed in 1995 and 2001. Previous examination coverages were credited using less conservative calculation techniques. For these particular exams, full coverage credit requires that the weld and applicable base material be examined in two directions axially (beams are perpendicular to the weld axis) and two directions circumferentially (beams are parallel to the weld axis). Although the previous data did not fully document how coverage was determined, the following compares the previous and current examinations:

(1) RHR-CA-2A

- (1995) axial scans were performed from both sides of the weld and full coverage credit was claimed on all but a small portion of the vessel and

distributor ring side base material and weld. A 45° transducer with a "Full Vee Path" calibration was credited as achieving the majority of the two direction axial scan coverage. Additionally, a supplemental 0° transducer was used from the face of the filet weld and was credited.

- (2001) axial scans were performed using similar exam techniques as used in 1995 with the exclusion of the 0° transducer. The coverage calculation documented was carried over from the 1995 data.

- (2011) axial scans were performed from both sides of the weld and full coverage credit was limited due to the weld configuration. Current axial coverage was obtained using a primary 45° transducer with a "Full Vee Path" calibration and supplemented with 60° and 70° transducers where applicable. The use of a 0° transducer is not a currently accepted technique for axial angle beam inspection and therefore was not performed.

- (1995) circumferential scans were performed from both sides of the weld using a 45° transducer in the clockwise and counterclockwise directions in relation to weld's centerline using a "Full Vee Path" calibration. It also appears that the use of the 0° transducer was credited for additional coverage.

- (2001) circumferential scans were performed using similar exam techniques as in 1995 with the exclusion of the 0° transducer. The coverage calculation documented was carried over from the 1995 data.

- (2011) circumferential scans were performed from both sides of the weld in the clockwise and counterclockwise directions in relation to weld's centerline using a "Single Vee Path" calibration. The use of a "Full Vee Path" calibration using a 45° transducer and the use of a 0° transducer from the face of a filet weld are not accepted techniques for circumferential angle beam inspection and therefore were not performed.

(2) RHR-CB-1A

- (1995) axial scans were performed from both sides of the weld and full coverage credit was claimed on all but a small portion of the nozzle side base material. A 45° and 60° transducer with "Full Vee Path" calibrations were used to credit two directional axial scan coverage.

- (2001) axial scans were performed using similar exam techniques as in 1995. The total examination coverage was recalculated to be 90.3%.

- (2011) axial scans were performed using a 45° transducer with a "Full Vee Path" calibration and supplemented with 60° and 70° transducers from the

vessel side of the weld as an acceptable single-sided exam technique that achieves 100% two directional axial scan coverage.

- (1995) circumferential scans were performed from the vessel side of the weld using a 45° transducer in the clockwise and counterclockwise directions in relation to weld's centerline. It appears that the same coverage calculation techniques that were used to credit axial scan coverage were also used for the circumferential scans.

- (2001) circumferential scans were performed using similar exam techniques as in 1995. The total examination coverage was recalculated to be 90.3%.

- (2011) circumferential scans were performed from the vessel side of the weld in the clockwise and counterclockwise directions in relation to weld's centerline using a "Single Vee Path" calibration. The use of a "Full Vee Path" calibration using a 45° transducer is not an accepted technique for circumferential angle beam inspection and therefore was not performed.

NRC Question #3

Please discuss whether or not alternative beam-angle examinations were attempted. Also, please describe the impact of these alternatives, if any, on coverage.

Response #3

a. RHR-CA-2A and RHR-CB-1A

(1) For axial scans, 60° and 70° angles were used to increase exam coverage as noted on the drawing included in Revision 0 of the Relief.

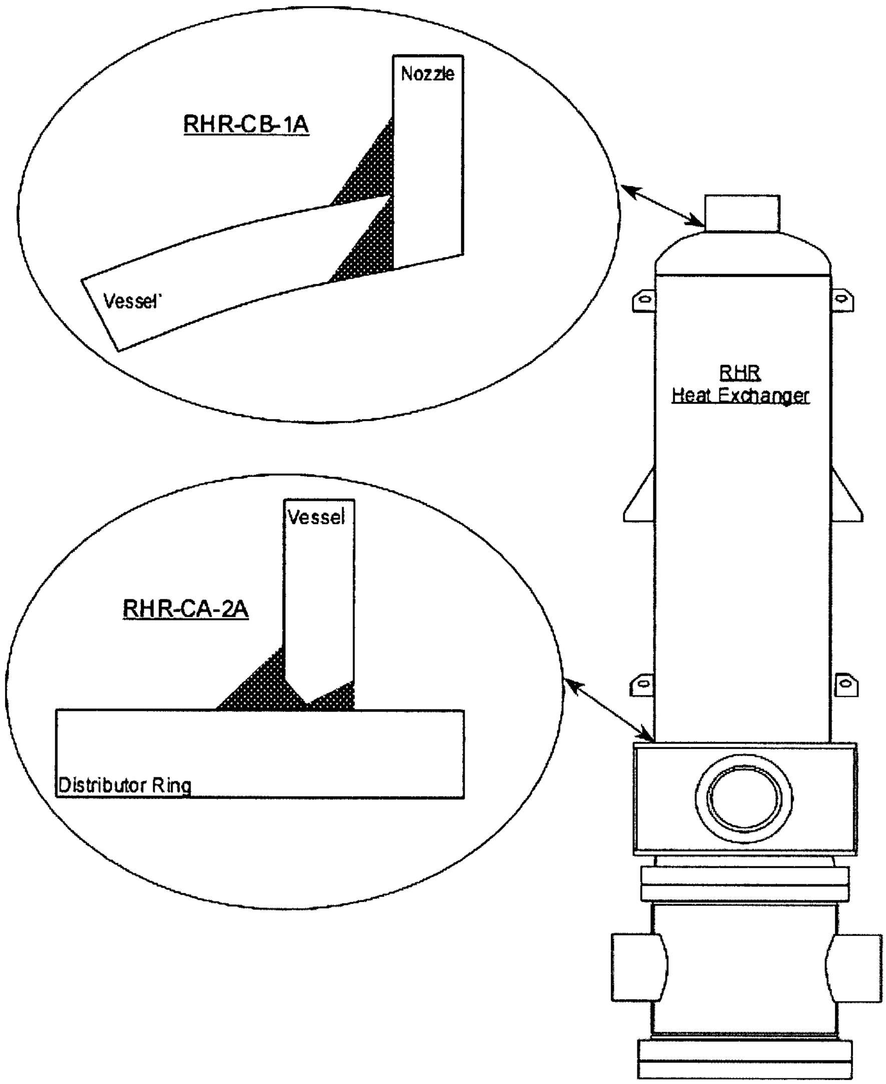
(2) For circumferential scans, a 45° transducer using a "Single Vee Path" calibration is the optimal technique for detecting axially oriented flaws inside a curved surface and therefore no additional angles were credited to increase circumferential scan coverage.

NRC Question #4

Please provide a diagram of the residual heat removal vessel on which the examinations were performed indicating on the diagram where the welds of interest are located.

Response #4

See following Figure:


Nozzle
RHR-CB-1A
Vessel
RHR
Heat Exchanger
Vessel
RHR-CA-2A
Distributor Ring

FIGURE