WOLF CREEK
NUCLEAR OPERATING CORPORATION

Richard A. Muench
Vice President Technical Services

FEB 12 2002

ET 02-0002

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

References: 1) Letter WM 87-0097, dated March 20, 1987, from B. D. Withers, WCNOC, to USNRC

2) Letter dated November 12, 1987, from USNRC to B. D. Withers, WCNOC

Subject: Docket 50-482: Inservice Inspection Program Alternative for Limited Examination on Closure Head to Flange Weld on the Reactor Pressure Vessel, Relief Request I2R-25

Gentlemen:

In accordance with 10 CFR 50.55a(a)(3)(i), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests Nuclear Regulatory Commission (NRC) approval for the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Inservice Inspection Program.

Attachment I describes Relief Request I2R-25 to the WCNOC Second Interval Inservice Inspection Program Plan. This relief request is applicable to the Closure Head to flange weld on the Reactor Pressure Vessel, CH-101-101. A complete examination could not be performed on this weld due to the physical geometry of the weld joint and flange design.

During Refuel IX, a significant portion of the required volume of the subject weld was successfully examined, which would provide detection of significant patterns of degradation. Considering the significant portion of weld coverage during Refuel IX, WCNOC proposes that performing the examinations to the fullest extent practical provides an acceptable level of quality and safety as required by 10 CFR 50.55a(a)(3)(i).

A similar relief request for the same weld for WCNOC's first ten-year interval was submitted by Reference 1 and was approved by Reference 2.

A047

WCNOC requests approval of this relief request by January 1, 2003. The approval date was administratively selected to allow for NRC review, but NRC approval by this date is not required to allow continued safe full power operation or to conduct a refueling outage.

Attachment II contains a list of commitments made in this letter.

If you have any questions concerning this matter, please contact me at (620) 364-4034, or Mr. Tony Harris at (620) 364-4038.

Very truly yours,

Richard A. Muench

RAM/pb

Attachments

cc: J. N. Donohew (NRC), w/a
W. D. Johnson (NRC), w/a
E. W. Merschoff (NRC), w/a
Senior Resident Inspector (NRC), w/a

RELIEF REQUEST I2R-25

Component Identification:

Code Class:	1
Examination Category:	B-A
Item Number:	B1.40
Description:	Closure Head to Flange Weld on Reactor Pressure Vessel (RPV)

Weld Identification Number:

CH-101-101 (Closure Head)

Examination Requirements:

The Wolf Creek Nuclear Operating Corporation (WCNOC) Second Interval Inservice Inspection (ISI) Program Plan is prepared to the 1989 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI. In addition, the RPV is examined in accordance with the recommendations of Regulatory Guide 1.150, Revision 1 (Alternate Method). From Table IWB-2500-1, the non-destructive exams required for this weld are surface and volumetric. ASME Section XI, Figure IWB-2500-5 illustrates the required examination surface area and volume, respectively.

ASME Section V, 1989 Edition, Article 4, Paragraph T-441.3.2, specifies that the volume illustrated in Figure IWB-2500-5 be scanned by straight and angle beam techniques. The angle technique scans shall generally have nominal angles of 45 degrees and 60 degrees. The examination volume must be scanned with the angle beam search units directed both at right angles to the weld axis (perpendicular to the weld) and along the weld axis (parallel to the weld).

Relief Requested:

Pursuant to 10 CFR 50.55a(a)(3)(i) and 10 CFR 50.55a(g)(6)(i), relief is requested to conduct alternative examinations as described below.

Basis for Alternative and Relief:

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that a reasonable percentage of the weld has been examined using available technology and techniques.

Pursuant to 10 CFR 50.55a(g)(6)(i), relief is requested on the basis that conformance with the Code requirements is impractical. In order to achieve the Code Required examinations, the closure head would have to be redesigned and refabricated.

Background from WCNOC ISI Program, Interval 1

RELIEF REQUEST I2R-25

In Reference 1, the NRC evaluated WCNOC's first interval incomplete volumetric exam for the subject weld. At that time, the NRC concluded that the limited exam of the subject weld provided an acceptable level of safety and that compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

WCNOC ISI Program Interval 2

100 per cent of the Code required surface exam was completed during Refuel IX with no indications recorded.

The design and configuration of the closure head to flange weld and the location of the lifting lugs prevent 100 per cent ultrasonic (UT) examination of the Code required volume for the subject weld.

Inspection Volume Coverage Summary:

> The required scan path is obstructed for the entire weld length (545.5 inches) by the flange and for 24 inches by the three lifting lugs. Figure 1 provides a representation of the joint.
>
> Due to the contour of the flange, the edge of the required adjacent base metal on the flange side of the weld is unable to be examined with 45 degree and 60 degree parallel and 0 degree scans. The amount of the Weld Required Volume (WRV) examined by these three scans is 83.8 per cent for each scan.
>
> The 45 degree perpendicular scan was affected by both the flange location and by the location of the lifting lugs. The coverage reduction due to the flange is 6.8 per cent; due to the lifting lugs is 0.2 per cent for a total reduction of 7.0 per cent. This gives the amount of the WRV examined by the 45 degree perpendicular scan at 93.0 per cent.
>
> The 60 degree perpendicular scan was affected by both the flange location and by the location of the lifting lugs. The coverage reduction due to the flange is 12.5 per cent; due to the lifting lugs is 0.2 per cent for a total reduction of 12.7 per cent. This gives the amount of the WRV examined by the 60 degree perpendicular scan at 87.3 per cent.
>
> The average of the above five scans yields 86.3 per cent composite coverage.

There were no unacceptable indications noted during the performance of these examinations.

Additional Technical Considerations

The WCNOC reactor pressure vessel was designed and fabricated in accordance with the stringent quality controls of ASME Section III. During fabrication, the ASME Section III required volumetric and surface examinations were performed on these specific welds with acceptable results.

RELIEF REQUEST I2R-25

Based on this information, reasonable assurance of the continued inservice structural integrity of the subject welds is achieved without performing a complete Code examination. Compliance with the applicable Code requirements can only be accomplished by redesigning and re-fabricating the reactor vessel. WCNOC deems this course of action impractical.

WCNOC considers that the use of the proposed alternative examinations described below will provide an acceptable level of quality and safety as required by 10 CFR 50.55a(a)(3)(i).

Proposed Alternative Examinations:

1) The closure head to flange weld has been examined to the fullest extent practical. WCNOC proposes that the completed examinations be considered an acceptable alternative to the Code requirements.

2) Periodic System Leakage Tests per Category B-P, Table IWB-2500-1, ASME Section XI, provide additional verification of component integrity.

Period for which Relief is Requested:

Relief is requested for the second ten-year interval of the WCNOC Inservice Inspection Program. This interval ends in 2005.

Implementation Schedule:

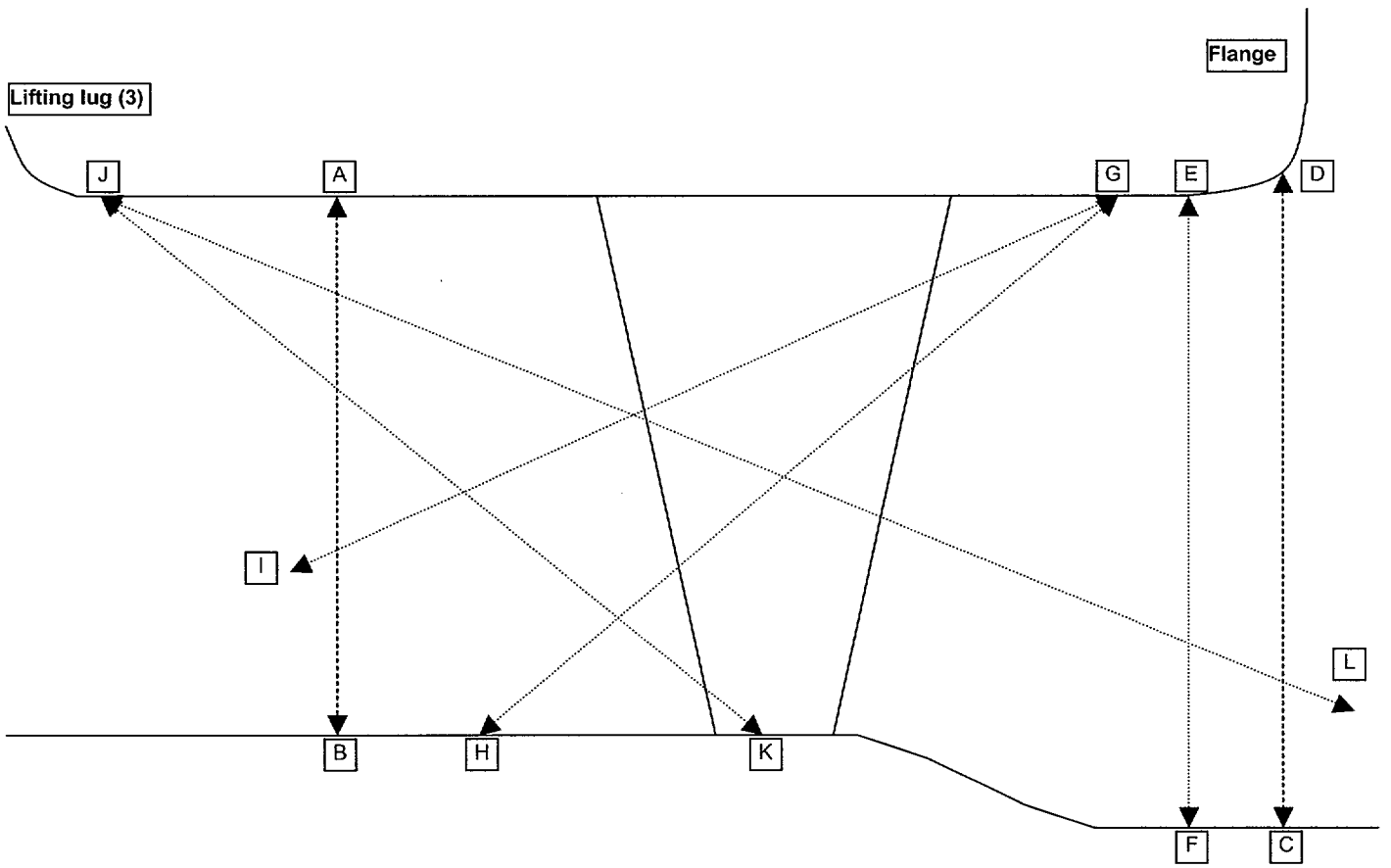
This relief request will be implemented within 60 days of approval.

WCNOC requests approval of this relief request by January 1, 2003.

RELIEF REQUEST I2R-25

FIGURE 1

Closure Head to Flange Weld Configuration
(Not to Scale)



Volume within points ABCD represents the Code required volume.
Volume within points CDEF represents the volume obstructed by the flange to the 45 degree and 60 degree parallel and 0 degree scans.
Lines from points GH and GI show how the 45 degree and 60 degree perpendicular scans are obstructed by the flange.
Lines from points JK and JL show how the 45 degree and 60 degree perpendicular scans are obstructed by the lifting lugs.

LIST OF COMMITMENTS

The following table identifies those actions committed to by Wolf Creek Nuclear Operating Corporation (WCNOC) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be commitments. Please direct questions regarding these commitments to Mr. Tony Harris, Manager Regulatory Affairs at Wolf Creek Generating Station, (620) 364-4038.

COMMITMENT	Due Date/Event
The relief request will be implemented within 60 days of approval.	Within 60 days of approval of the relief request.