

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President Engineering

November 29, 2005
ET 05-0028

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

- References:
- 1) Letter WM 95-0129, dated August 30, 1995; from N.S. Carns, WCNOG, to USNRC
 - 2) NRC Letter dated March 6, 1996, from USNRC to N.S. Carns, WCNOG
 - 3) Letter ET 96-0027, dated May 3, 1996, from R.A. Muench, WCNOG, to USNRC
 - 4) NRC Letter dated November 25, 1996, from USNRC to N.S. Carns, WCNOG
 - 5) Letter WM 97-0006, dated January 23, 1997, from O.L. Maynard, WCNOG, to USNRC
 - 6) NRC Letter dated October 24, 1997, from USNRC to O.L. Maynard, WCNOG
 - 7) Letter ET 97-0031, dated May 23, 1997; from R.A. Muench, WCNOG, to USNRC
 - 8) NRC Letter dated April 15, 1998, from USNRC to O.L. Maynard, WCNOG
 - 9) Letter KLM 85-268, dated December 11, 1985, from G.L. Koester, KG&E, to USNRC
 - 10) Letter ET 87-0064, dated February 20, 1987, from J.A. Bailey, WCNOG, to USNRC
 - 11) Letter dated November 12, 1987, from USNRC to B.D. Withers, WCNOG
 - 12) Letter ET 05-0027, dated November 22, 2005, from T.J. Garrett, WCNOG, to USNRC

Subject: Docket No. 50-482: 10 CFR 50.55a Request I1R-51 Regarding ASME Section XI Requirements for Examination Coverage of the Reactor Pressure Vessel Nozzle-to-Vessel welds, and Correction to Relief Requests I2R-03 and I2R-21 for WCNOG's Second Inservice Inspection Interval

Gentlemen:

During completion of the Second Inservice Inspection (ISI) Interval Wolf Creek Nuclear Operating Corporation (WCNOG) identified errors in two (2) relief requests previously submitted to the NRC. Relief Request I2R-03 incorrectly reported an examination of the Reactor Vessel (RV) flange-to-shell weld in Interval 2 when it should have been for Interval 1. As a result, I2R-03 is being withdrawn. Similarly, Relief Request I2R-21 incorrectly reported an examination of

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the RV outlet nozzle-to-shell welds in Interval 2 when it should have been for Interval 1. As a result, I2R-21 is being withdrawn and replaced by Interval 1 Relief/10 CFR 50.55a Request I1R-51, attached. Although 10 CFR 50.55a Request I1R-51 is for an Interval 1 examination completed nearly 10 years ago, it is being submitted to correctly reflect the examinations performed and correct the legal basis for completion of Interval 1.

Pursuant to 10 CFR 50.55a(g)(5)(iii), WCNOG requests relief from certain examination coverage requirements imposed by the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," for the Wolf Creek Generating Station (WCGS). In addition, Relief Requests I2R-03 and I2R-21 are being withdrawn.

The attachment provides 10 CFR 50.55a Request I1R-51 to the WCNOG Interval 1 ISI Program Plan. This 10 CFR 50.55a request is for weld examinations of the RV outlet nozzle-to-vessel welds, performed during Refueling Outage 8 in the spring of 1996, where the required coverage of "essentially 100 percent" could not be obtained when examined to the extent practical. The basis for the 10 CFR 50.55a request is that compliance with the specified requirements is impractical due to plant design. It should be noted that 10 CFR 50.55a Request I1R-51 is a rewrite of WCNOG Relief Request I2R-21, with corrections for code references and the interval incorporated.

The examinations referenced in Relief Requests I2R-03 and I2R-21 are incorrectly stated to have been performed in Interval 2. These examinations were performed in Refueling Outage 8, Spring of 1996 as part of the 10 year RV ISI examinations. This outage was in the time frame that was the beginning of Interval 2 (that began September 3, 1995), and also the completion of Interval 1 that was within the allowed 1-year extension (Interval 1 ended in April, 1996). The examinations were performed in accordance with a procedure that met the requirements of the code of record for both Interval 1 (1980 Edition through Winter 1981 Addenda) and Interval 2 (1989 Edition with no Addenda).

I2R-03:

Reference 1 submitted the Interval 2 ISI Program Plan and several relief requests. Relief Request I2R-03 was included among these. Reference 2 was a Request for Additional Information (RAI) regarding several documents submitted in Reference 1, including I2R-03. Reference 3 submitted the WCNOG response to the RAI. Reference 4 was another RAI regarding several documents, including I2R-03. Reference 5 submitted the WCNOG response to the RAI in Reference 4. Reference 6 contains the safety evaluation with the NRC's approval of several documents, including I2R-03 as revised in the responses to the RAIs.

The subject of I2R-03 is the examination of the RV shell-to-flange weld. This examination is a two-part exam, initially to be performed from the flange face in the first period, and completed in the third period from the vessel shell during the 10 year RV exams at the end of the interval. The examination from the flange face for Interval 1 was completed in Refueling Outage 2. In reference 3, the statement is made that this component's Interval 2 examination (automated portion only) was completed during Refueling Outage 8 in the Spring of 1996. This statement is incorrect, as the automated exam from the shell in Refueling Outage 8 was the completion of the Interval 1 exam. Therefore, Relief Request I2R-03 is being withdrawn.

The second interval examination was performed from the flange face in Refueling Outage 10, and completed from the vessel shell in Refueling Outage 14. These examinations achieved greater than 90% coverage; therefore, no relief is needed for Interval 2.

In Interval 1, relief from 100% volumetric examination of the RV shell-to-flange weld was requested in Enclosure H of reference 9, clarified in reference 10, and approved by the NRC in reference 11 on the basis that the weld would be examined to the maximum extent possible, but that approximately 25% of the required weld volume would not be able to be examined due to the flange taper above the weld. The logic presented in the relief request is that the portion of the examination that utilized ultrasonic beams from the flange face would be fully completed, but that the portion of the examination conducted from the vessel shell would not be able to examine the volume above the weld due to the flange taper. The actual result of the examination was that the portion of the examination conducted from the flange face was fully completed, and the examination from the shell was not able to achieve coverage of most of the volume above the weld due to the flange taper. Thus the relief granted in Interval 1 remains valid and no new relief is required for Interval 1.

I2R-21:

Reference 7 submitted additional Relief Requests, including Relief Request I2R-21. Reference 8 contains the safety evaluation with the NRC's approval of several documents, including I2R-21. Reference 9 submitted Interval 1 relief requests, including one for the outlet nozzle-to-vessel welds (Enclosure I of reference 9). Reference 11 contains the safety evaluation with the NRC's approval of several documents, including the relief request in Enclosure I of reference 9.

Relief Request I2R-21 addresses the limitations of examinations of the RV outlet nozzle-to-vessel welds. Similar to the RV shell-to-flange weld, an outlet nozzle-to-vessel weld has part of the required examination performed from the bore in Period 1 and the remainder (from the shell) performed at the end of the interval. The cover letter in Reference 1 states that I2R-21 is being submitted for the Second 10-year ISI Interval for an examination performed in Refuel 8. This statement is incorrect, as the examinations of the RV nozzle-to-vessel welds from the shell in Refuel 8 were to complete the examinations required for Interval 1.

The Interval 2 RV outlet nozzle-to-vessel welds were examined in Refuel 14. These examinations achieved a composite coverage of 80.27%, which is greater than the 71.5% stated in I2R-21. However, these examinations were performed in accordance with the requirements of Appendix VIII as required by 10 CFR 50.55a; the examinations referenced in I2R-21 were performed to the requirements of ASME Section V, 1989 Edition. Also the volume required to be examined in Refuel 14 is based on Code Case N-613-1 (permission to use Code Case N-613-1 was granted by the NRC in a letter dated May 17, 2005), in lieu of the Section XI volume examined in Refuel 8. As the examinations actually performed to satisfy the Interval 2 ISI program plan were based on different examination methodology and a different required volume than that previously approved for I2R-21, WCNOG determined that a new request for relief should be submitted. The new request has been submitted as 10 CFR 50.55a Request I2R-33 by WCNOG Letter ET 05-0027 (Reference 12). Therefore, Relief Request I2R-21 is being withdrawn.

In Interval 1, relief from 100% volumetric examination of the outlet nozzle-to-vessel welds was requested in Enclosure I of reference 9 and approved by the NRC in reference 11 on the basis that the subject welds would be examined to the maximum extent possible, but that approximately 10% of the required weld volume was obstructed by the protrusion of the outlet nozzle knuckle. The actual composite volume that was unable to be examined was 28.5%, which is not considered to be approximate to 10%; therefore, this relief is not considered valid for the actual examination results. Since Relief Request I2R-21 was submitted in error for

Interval 2, this relief request is not valid for Interval 1. To resolve this error, the information in Relief Request I2R-21 has been corrected and re-written as 10 CFR 50.55a request I1R-51, attached.

The issues discussed in this letter have been entered into the WCNOG corrective action program (reference PIR 2005-0405). Submittal of 10 CFR 50.55a Requests I1R-51 and I2R-33 (Reference 12), and this letter identifying and correcting these discrepancies/issues are some of the corrective actions for PIR 2005-0405.

There are no commitments contained within this letter. If you have any questions concerning this matter, please contact me at (620) 364-4084, or Mr. Kevin Moles at (620) 364-4126.

Sincerely,



Terry J. Garrett

TJG/rlg

Attachment: 10 CFR 50.55a Request Number I1R-51

cc: J. N. Donohew (NRC), w/a
W. B. Jones (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

10 CFR 50.55a Request Number I1R-51

**Relief Request
In Accordance with 10 CFR 50.55a(g)(5)(iii)
--Inservice Inspection Impracticality--**

1. ASME Code Component(s) Affected

Class 1 Reactor Pressure Vessel Pressure-retaining Nozzle-to-Vessel welds as listed.

NOZZLE WELDS CODE CATEGORY B-D

Code Item	Description	Weld No.
B3.90	Loop A Outlet Nozzle to Vessel Weld	1-RV-107-121-A
B3.90	Loop B Outlet Nozzle Vessel Weld	1-RV-107-121-B
B3.90	Loop C Outlet Nozzle to Vessel Weld	1-RV-107-121-C
B3.90	Loop D Outlet to Vessel Weld	1-RV-107-121-D

2. Applicable Code Edition and Addenda

The applicable Code edition and addenda for Inservice Inspection Interval 1 is ASME Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 1980 Edition, through Winter 1981 Addenda.

3. Applicable Code Requirement

ASME Section XI, 1980 Edition through Winter 1981 Addenda, Table IWB-2500-1, Examination Category B-D, Item No. B3.90 requires 100% volumetric examination of the weld plus 1/2 the wall thickness of adjacent base metal on each side of the weld crown.

ASME Section V, 1980 Edition through Winter 1981 Addenda, Article 4, T-441.4, specifies that this volume be examined with two angle beams scans (i.e., 45° and 60° nominal) for reflectors transverse to the weld seam, with two angle beam scans for reflectors parallel to the weld seam, and with a straight (0°) beam scan for planar and laminar reflectors.

An additional 70° angle beam examination was utilized for near surface (ID) coverage, up to a depth of 1" or 1/4t, whichever is greater.

4. Impracticality of Compliance

Reactor Vessel design and configuration prevents 100% ultrasonic (UT) examination of the code required volume (CRV) for the subject welds. The specific limitations for each weld are discussed below and detailed on the applicable attachments and figures. Calculation of the CRV achieved percentages is based on a conservative approach which employs the UT central ray data only; beam spread was not taken into account.

Physical limitations of the UT scans of the Outlet Nozzle to Vessel Welds were due to the outlet nozzle protrusion configurations which prevented full coverage as shown in Figures 1 and 2. Composite coverage of the UT scans was calculated to be 71.5% for each weld. Attachment 1 provides a summary of the inspection coverage.

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5. Burden Caused by Compliance

The design configuration restrictions of WCNOG make the Code required examination coverage requirements impractical. Plant modifications or the replacement of components designed to allow for complete coverage would be needed to meet the ASME Code requirements. This would impose a considerable burden to WCNOG.

6. Proposed Alternative and Basis for Use

Proposed Alternative

The following alternative is proposed in lieu of the required examination coverage of essentially 100 percent:

The subject welds were examined to the maximum extent possible. An additional 70° angle beam examination was utilized for the near surface (ID) coverage, up to a depth of 1" or 1/4t, whichever is greater.

Basis for Use

The Reactor Vessel was designed and fabricated in accordance with the stringent controls of ASME Section III; subsequent volumetric and surface examinations as well as pressure testing was performed on these welds with acceptable results. A significant portion of the required volume was examined which provides for detection of significant patterns of degradation.

The alternative provided the best examination coverage possible within the limitations of the design configuration.

7. Duration of Proposed Alternative

The first ten year ISI interval which began September 3, 1985 and ended April 7, 1996.

8. Precedents

WCNOG Letter ET 07-0031, dated May 23, 1997, Docket No. 50-482, "Inservice Inspection Program Relief Requests I1R-46 through I1R-49 and I2R21" and the associated NRC Safety Evaluation Report dated April 15, 1998 (TAC No. 98809). Relief Request I2R21 was submitted in error and approved for the Second Interval ISI Program Plan. 10 CFR 50.55a Request I1R-51 is a re-write of WCNOG Relief Request I2R-21, with corrections for code references and the interval incorporated.

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ATTACHMENT 1

Welds #1-RV-107-121A, B, C, D
Reactor Vessel Outlet Nozzle-to-Shell Welds

Examination Limitations: Outlet nozzle protrusions

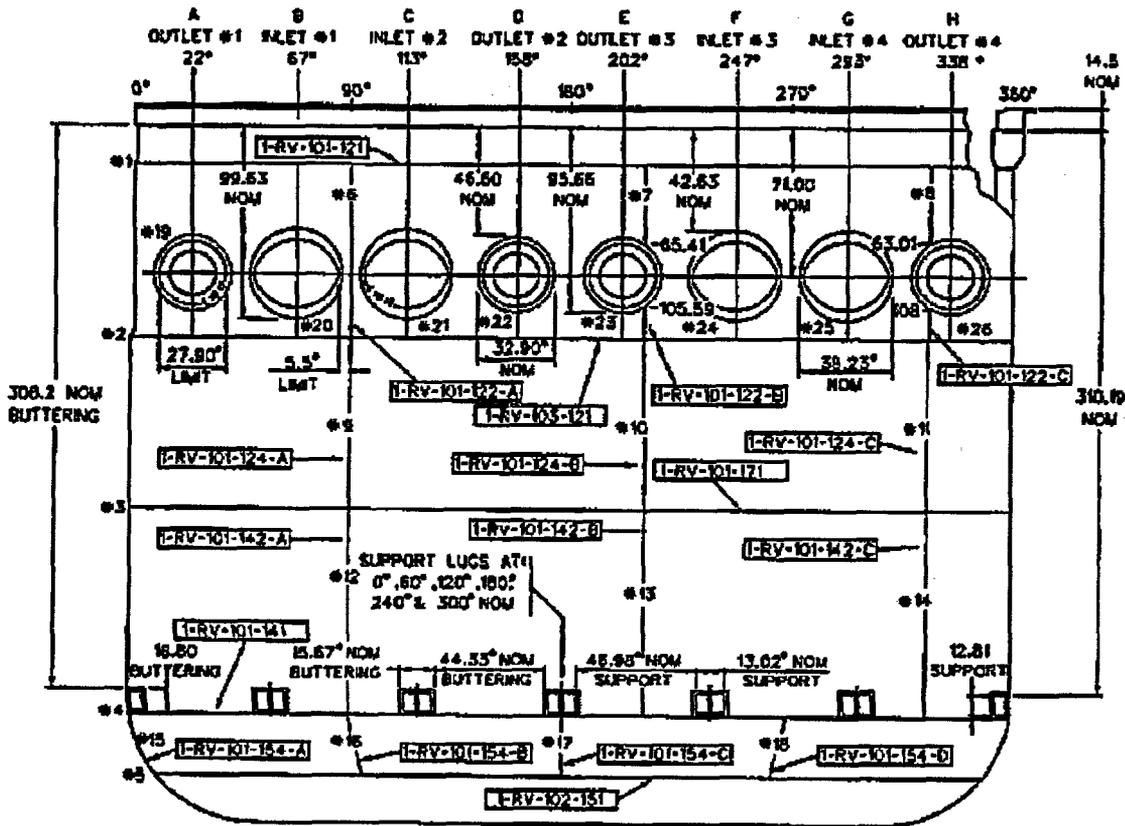
Composite Coverage: 71.5%

Inspection Volume Coverage Summary: Parallel (2 angles): 43.2%
Perpendicular (2 angles): 99.7%
Zero Degree: 43.2%

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Figure 1

Reactor Pressure Vessel Rollout View (Not to scale)



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Figure 2

Outlet Nozzle Exam Areas
(Not to Scale)

