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10 CFR 50.55a

NLS2009060
October 5, 2009

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

Subject: 10 CFR 50.55a Request Number RI-06, Revision 0
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dear Sir or Madam:

The purpose of this letter is to request that the Nuclear Regulatory Commission (NRC) grant Nebraska Public Power District (NPPD) relief from certain inservice inspection (ISI) code requirements for Cooper Nuclear Station (CNS) pursuant to 10 CFR 50.55a.

10 CFR 50.55a Request Number RI-06, Revision 0 is applicable to the fourth ten-year ISI interval, which began March 1, 2006. NPPD requests NRC approval of the attached request by October 5, 2010, which represents a standard twelve-month review period following the submittal. Approval of this request is not needed to support currently scheduled work at CNS.

RI-06 is contained in the attachment to this letter. Based on past weld examinations, NPPD has determined that compliance with the code requirements of achieving essentially 100% coverage of the welds listed in this attachment is impractical for CNS. Therefore, relief is required due to not achieving essentially 100% coverage. The proposed alternative and basis for use is provided in the attachment to this letter.

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
Site Vice President

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NRR

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Attachment

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/ attachment

CNS Records w/ attachment

10 CFR 50.55a Request Number: RI-06, Revision 0

Relief Request
In Accordance with 10 CFR 50.55a(g)(5)(iii)

--Inservice Inspection Impracticality--

ASME Code Components Affected

Code Class:	1
References:	IWB-2500, Table IWB-2500-1
Examination Category:	B-A
Item Number:	B1.12
Description:	Inspection of Reactor Vessel Longitudinal Welds.
Component Numbers:	VLA-BA-2, VLA-BA-3, VLB-BA-1, VLB-BA-3, VLC-BB-1

Applicable Code Edition and Addenda

American Society of Mechanical Engineers (ASME) Code Section XI, 2001 Edition, 2003 Addenda.

Applicable Code Requirement

Table IWB-2500-1, Category BA, Item B1.12, requires a volumetric examination of the longitudinal reactor vessel welds.

Impracticality of Compliance

The Cooper Nuclear Station (CNS) construction permit was issued before the effective date of implementation for ASME Section XI and thus the plant was not designed to meet the requirements of inservice inspection; therefore, 100% compliance is not feasible or practicable.

Access to the reactor vessel shell welds from the exterior is limited. Below the top of the biological shield, most of the reactor vessel is insulated with permanent reflective insulation and surrounded by a concrete biological shield. Penetrations through the biological shield provide limited access to some welds. The annular space between the inside diameter of the insulation and the outside diameter of the reactor vessel is a nominal two (2) inches. There is no working space to remove the insulation panels from the vessel, which precludes both direct and remote examination of the outside surface.

In accordance with ASME Section XI, an automated ultrasonic (UT) examination of the Reactor Vessel shell welds was performed during refueling outage (RFO) 24 using Performance Demonstration Initiative qualified procedures and conventional UT probes. Supplemental manual examinations were performed to the extent practical to obtain additional volumetric

coverage. Weld coverage is identified in the attached table. All welds were examined with no recordable indications.

Burden Caused by Compliance

In order to perform the code-required examinations, the welds and reactor vessel support skirt would require design modifications to allow access for examination from the outside diameter.

Proposed Alternative and Basis for Use

Reference 1 accepted a relief request exempting the vessel circumferential welds from examination based on the criteria of BWRVIP-05. Part of the justification for relief was the requirement to examine greater than 90% of the examination volume of the accessible longitudinal welds. Table RI-06-1 provides the coverage achieved during the examinations in RFO 24.

The six (6) beltline weld inspections obtained an average of 82.6% coverage. CNS performed an evaluation that considers the effects of fluence on the beltline welds where neutron fluence is most significant. The analysis considered the fluence affects out to sixty (60) years, well beyond the remaining portion of the current operating license and the Fourth Ten-year interval. The analysis compared the probability of failure due to an average reduction in inspection coverage assumed at 55% compared to the minimum required 90%. The analysis concluded that the probability of failure for the less than 90% inspection coverage for the CNS beltline longitudinal welds is approximately the same and therefore will continue to satisfy the limiting conditional failure probability for circumferential shell welds in the Nuclear Regulatory Commission's July 28, 1998, Safety Evaluation Report to BWRVIP-05.

Specifically, the probability of failure event for the beltline longitudinal welds due to a low temperature over-pressurization event is 9.077×10^{-4} at sixty (60) years (54 Effective Full Power Years) and 1.513×10^{-5} per year for 55% inspection coverage. The difference between the two inspection coverage cases (55% and 90%) for the longitudinal welds is 6.67×10^{-9} probability of failure event per year. This difference is less than the 1×10^{-6} per year requirement as specified in Reference 2, thus providing reasonable assurance of structural integrity. In summary, the reduction in inspection coverage continues to satisfy the basis for inspection relief for the reactor vessel circumferential welds approved in CNS 50.55a Request RI-29 (See Reference 1).

In accordance with 10CFR50.55a(g)(5)(iii), CNS proposes to examine the accessible portions of reactor vessel longitudinal welds in lieu of the impractical Code required examinations.

Duration of Proposed Alternative

The proposed alternative is for the Fourth Ten-year interval of the Inservice Inspection Program for CNS that started on March 1, 2006 and ends in 2014, at the end of the current license.

References

1. Letter from U.S. Nuclear Regulatory Commission to S. B. Minahan, dated February 6, 2008, Request for Relief No. RI-29 For Fourth 10-Year Inservice Inspection Interval Regarding Volumetric Examination Of Reactor Pressure Vessel Circumferential Shell Welds (TAC No. MD5260).

2. Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis".

RELIEF REQUEST NUMBER: RI-06, REVISION 0

TABLE RI-06 -1 RPV Shell Weld Coverage Limitations

(Relief is requested for welds in bold text)

Weld Number	Percent Coverage			Restrictions
	Auto From ID	Manual From OD	Total	
VLA-BA-1, Shell Ring 1, Longitudinal (Beltline region)*	*76.4%*	*14.1%*	*90.5%*	*Core Spray downcomer and guide rod to shroud support bracket (ID). N1A & N2A nozzles, insulation support rings, and biological shield (OD).*
VLA-BA-2, Shell Ring 1, Longitudinal (Beltline Region)	**77.6%**	**n/a**	**77.6%**	**Jet pump diffuser and shroud support gussets (ID). Insulation support and biological shield (OD).**
VLA-BA-3, Shell Ring 1, Longitudinal (Beltline Region)	**78.0%**	**n/a**	**78.0%**	**Jet pump diffuser and shroud support gussets (ID). Insulation support and biological shield (OD).**
VLB-BA-1, Shell Ring 2, Longitudinal (Beltline Region)	**88.7%**	**n/a**	**88.7%**	**Jet pump riser braces (ID). Insulation support and biological shield (OD).**
VLB-BA-2, Shell Ring 2, Longitudinal (Beltline Region)*	*93.3%*	*n/a*	*93.3%*	*Guide rods and core spray downcomers (ID). Biological shield (OD).*
VLB-BA-3, Shell Ring 2, Longitudinal (Beltline Region)	**67.6%**	**n/a**	**67.6%**	**Surveillance specimen brackets and jet pump riser braces (ID). Biological shield (OD).**
VLC-BB-1, Shell Ring 3, Longitudinal	**19.2%**	**n/a**	**19.2%**	**Guide rods, Feedwater Spargers, and core spray downcomers (ID). Biological shield (OD).**

RELIEF REQUEST NUMBER: RI-06, REVISION 0, Continued

TABLE RI-06 -1 RPV Shell Weld Coverage Limitations

(Relief is requested for welds in bold text)

Weld Number	Percent Coverage			Restrictions
	Auto From ID	Manual From OD	Total	
*VLC-BB-2**, Shell Ring 3, Longitudinal*	*73.0%*	*n/a***	*73.0%*	*Core Spray piping, Feedwater Spargers (ID).*
*VLC-BB-3**, Shell Ring 3, Longitudinal*	*79.1%*	*n/a***	*79.1%*	*Core Spray piping, Feedwater Spargers (ID). Biological shield (OD).*
VLD-BB-1, Shell Ring 4, Longitudinal*	*90.1%*	*n/a*	*90.1%*	*Steam dryer support lug (ID).*
VLD-BB-2, Shell Ring 4, Longitudinal*	*94.0%*	*n/a*	*94.0%*	*Steam dryer support lug (ID).*
VLD-BB-3, Shell Ring 4, Longitudinal*	*100%*	*n/a*	*100%*	

* Based on Code Case N-460, relief is not required when at least 90% of the required volume has been examined. No relief is requested for these welds. However the extent of coverage for these welds is provided as supporting information for evaluation of this request.

** Relief for these two welds is not requested at this time. A portion of these welds are accessible by opening the biological shield doors at two feedwater nozzles. The examinations will be considered complete when CNS performs the manual examinations to obtain additional coverage at the same time the shield doors are opened for the feedwater nozzle to shell examinations scheduled in the Third ISI Period.

ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©[4]

Correspondence Number: NLS2009060

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITMENT NUMBER	COMMITTED DATE OR OUTAGE
None		