October 11, 2006

Mr. Randall K. Edington
Vice President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION RE: FOURTH 10-YEAR INTERVAL INSERVICE INSPECTION REQUEST FOR RELIEF NO. RI-02 (TAC NO. MD0279)

Dear Mr. Edington:

By letter dated February 23, 2006, Nebraska Public Power District (the licensee) submitted Relief Request No. RI-02 pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii), requesting authorization to use the existing calibration blocks for ultrasonic examination of Class 1 and 2 components during the fourth 10-year inservice inspection (ISI) interval at Cooper Nuclear Station (CNS). American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2001 Edition, 2003 Addenda is the ISI code of record for the CNS fourth 10-year ISI Interval which commenced on March 1, 2006.

Based on the enclosed safety evaluation, Relief Request RI-02 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the ASME Code requirements would result in hardship or unusual difficulty (requiring the licensee to procure new calibration blocks of the same materials specifications) without a compensating increase in the level of quality and safety. The proposed alternative provides reasonable assurance of structural integrity. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii) the alternative is authorized for the fourth 10-year interval.

Sincerely,

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOURTH 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

REQUEST FOR RELIEF NO. RI-02, USE OF EXISTING CALIBRATION BLOCKS

FOR ULTRASONIC EXAMINATION OF CLASS 1 AND 2 COMPONENTS

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated February 23, 2006, Nebraska Public Power District (NPPD, the licensee) requested that the Nuclear Regulatory Commission (NRC) approve Relief Request RI-02 pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(ii). NPPD requested authorization to use the existing calibration blocks for ultrasonic examination of Class 1 and 2 components during the fourth 10-year inservice inspection (ISI) interval at Cooper Nuclear Station (CNS). American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2001 Edition, 2003 Addenda is the ISI code of record for the CNS fourth 10-year ISI Interval which commenced on March 1, 2006.

2.0 BACKGROUND AND REGULATORY EVALUATION

Paragraph 50.55a(g) of 10 CFR specifies that ISI of nuclear power plant components shall be performed in accordance with the requirements of the ASME Code, Section XI, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

Paragraph 50.55a(a)(3) of 10 CFR states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The information provided by the licensee in support of the request has been evaluated by the NRC staff and the bases for disposition are documented below.

2.1 Licensee's Evaluation

2.1.1 ASME Code Component(s) Affected

Code Classes:	1 and 2
Examination Categories:	B-A, B-F, B-G-1, B-J, C-A, C-B, C-F-1, C-F-2
Item Numbers:	B1.11, B1.12, B1.21, B1.22, B1.30, B1.40, B5.10, B6.40, B9.11, B9.31, C1.10, C1.20, C1.30, C2.21, C5.11, and C5.51
Component Numbers:	Various

2.1.2 ASME Code Requirements from which Relief is Requested

Article IWA-2000, "Examination and Inspection," paragraph IWA-2232, "Ultrasonic Examination," states that ultrasonic examination shall be conducted in accordance with Appendix I.

Appendix I, Supplement 1, "Calibration Block Material and Thickness," states that:

(a) The material from which the blocks are fabricated shall be one of the following:
(1) a nozzle dropout from the component;
(2) a component prolongation; or
(3) material of the same material specification, product form, and heat treatment condition as one of the materials being joined.

(b) Where two or more base material thicknesses are involved, the calibration block thickness shall be of a size sufficient to contain the entire examination path.

Appendix III, "Ultrasonic Examination of Vessels Not Greater than 2 Inches (51 mm) in Thickness," Article III-3000, "Calibration," Subarticle III-3400, "Basic Calibration Blocks," paragraph III-3411, "Material Specification," states:

(a) The calibration blocks for similar metal welds shall be fabricated from one of the materials being joined by the weld.

(b) Calibration blocks for dissimilar welds shall be fabricated from the material specified for the side of the weld from which the examination will be conducted. If the examination will be conducted from both sides, calibration reflectors shall be provided in both materials.

(c) Where the examination is to be performed from only one side of the joint, the calibration block material shall be of the same specification as the material on that side of the joint.

(d) If material of the same specification is not available, material of similar chemical analysis, tensile properties, and metallurgical structure may be used.

(e) When the component material is clad, and the cladding is determined to be important to

the examination, the block shall be clad by the same welding procedure as the production part. When the automatic method is impractical, a manual method shall be used.

2.2 Licensee's Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards," paragraph (a)(3), relief is requested from the requirements of ASME Code, Section XI, Appendix III, paragraph III-3411, as supplemented by Table I-2000-1, for several of the calibration blocks currently being used at the CNS that lack the documentation necessary to demonstrate compliance with the material specification requirements of Appendix III, paragraph III-3411, as supplemented by Table I-2000-1. This is because the documentation requirements existing at the time of the fabrication of the blocks did not require traceability to the material's chemical or physical certifications. Consequently, the only documentation available for these existing calibration blocks is verification of the appropriate P-number grouping.

It would be a hardship or unusual difficulty without a compensating increase in the level of quality or safety to fabricate a new set of calibration blocks in order to satisfy the documentation requirements of the current code.

2.3 Licensee's Proposed Alternative and Basis for Use

All future calibration blocks will meet the material specification requirements of ASME Code, Section XI, Appendix III, paragraph III-3411, as supplemented by Table I-2000-1, and will be provided with the documentation necessary to demonstrate compliance with these requirements. Additionally, when using existing calibration blocks that lack the appropriate documentation, acoustic similarity comparisons will be made between the attenuation of the calibration blocks and the material velocity of the materials being examined. This additional comparison will provide adequate assurance that the existing blocks will provide the proper ultrasonic calibration and sensitivity. Existing records which indicate the appropriate P-number grouping will provide reasonable assurance of structural integrity.

Use of the provisions of this 10 CFR 50.55a request as an alternative to the specific requirements of Appendix III, paragraph III-3411, as supplemented by Table I-2000-1, identified above, will continue to provide an acceptable level of quality and safety. Therefore, the NPPD requests authorization to use this alternative in lieu of the ASME Code, Section XI, Appendix III, paragraph III-3411, as supplemented by Table I-2000-1, requirements for calibration block material specifications in order to allow the continued use of the existing calibration blocks.

3.0 TECHNICAL EVALUATION

The licensee stated that ASME Code, Section XI, 2001 Edition, 2003 Addenda is the ISI code of record for the CNS fourth 10-year ISI Interval which commenced on March 1, 2006. Section XI, IWA 2232 requires that ultrasonic examinations shall be conducted in accordance with Appendix I. Appendix I, paragraph I-2200 states that ultrasonic examinations of vessel welds less than 2-inches thick and all piping welds shall be conducted in accordance with Appendix III, as supplemented by Appendix I. Appendix III, paragraph III-3411 outlines the material specification requirements for calibration blocks. It requires calibration blocks to be

fabricated from material of the same specifications as the piping being joined by the weld. It also states that if material of the same specification is not available, similar chemical analysis, tensile properties, and metallurgical structure may be used.

The licensee has proposed as an alternative to Appendix III, paragraph III-3411 requirements for calibration block material specifications, to continue to use existing calibration blocks for the examination of existing plant components. In addition, the licensee has committed to compare the attenuation of the calibration block material velocity of the material being examined. This additional comparison will provide adequate assurance that the existing blocks will provide proper ultrasonic calibration and sensitivity. The material specification documentation required by the 1989 Edition was not required by the original fabrication Code; the original calibration blocks were fabricated based on P-number groupings. The procurement of new calibration blocks of the same materials specifications would result in an unusual difficulty without compensating increase in the level of quality and safety. Therefore, the staff concludes that the licensee has proposed an acceptable alternative to the ASME Code, Section XI, Appendix III, paragraph III-3411 requirements for calibration block material to be used for the ultrasonic examination of existing plant components. Further, the NRC had previously approved the same relief for the third 10-year interval for CNS on October 23, 1997 (TAC No. M94000).

4.0 CONCLUSION

The NRC staff concludes that the licensee has proposed an acceptable alternative to the ASME Code, Section XI, Appendix III, paragraph III-3411 requirements for calibration block material by proposing to continue to use existing calibration blocks. The licensee has also committed to compare the attenuation of the calibration block and material velocity of the material being examined. This additional comparison will provide adequate assurance that the existing blocks will provide proper ultrasonic calibration and sensitivity. The proposed alternative provides reasonable assurance of structural integrity. Requiring the licensee to procure new calibration blocks of the same materials specifications for the examination of existing components would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii) the alternative is authorized for the fourth 10-year interval.

All other ASME Code, Section XI, requirements for which was not specifically requested and authorized herein by the NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

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cc:

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