October 13, 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-15, EXAMINATION OF PERIPHERAL CONTROL ROD DRIVE HOUSING WELDS (TAC NO. MD0282)

Dear Mr. Edington:

By letter dated February 23, 2006, Nebraska Public Power District (the licensee) submitted Relief Request No. RI-15 which relates to the examination of peripheral control rod drive (CRD) housing welds during the fourth 10-year inservice inspection interval at Cooper Nuclear Station.

The Nuclear Regulatory Commission (NRC) staff has completed its review of Relief Request RI-15 and the safety evaluation is enclosed. Based on the information provided in Relief Request No. RI-15, the NRC staff concludes in the enclosed safety evaluation that the American Society of Mechanical Engineers (ASME) Code-required surface examination, is impractical. The proposed alternative to examine 100 percent of eight peripheral CRD lower housing welds during the inspection interval and visually examine (VT-2) the remaining CRD housing welds (upper and lower) in conjunction with the Class 1 system leakage test after each refueling outage, provides an acceptable level of quality and safety. Therefore, pursuant to Title 10 of the *Code of Federal Regulations*, paragraph 50.55a(g)(6)(i), the request for relief is granted. Granting relief for the fourth 10-year ISI interval for Cooper Nuclear Station is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden that could result if the requirements were imposed on the facility.

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 RI-15

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

## 1.0 INTRODUCTION

By letter dated February 23, 2006, Nebraska Public Power District (the licensee) requested pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(g)(5)(iii) that the Nuclear Regulatory Commission (NRC, the Commission) approve Relief Request RI-15 for the fourth 10-year inservice inspection (ISI) interval at Cooper Nuclear Station (CNS). The licensee requested relief from the regulations, because in order to perform the American Society of Mechanical Engineers (ASME) Code-required surface examination, the CRDs and reactor vessel support skirt would require design modification to allow access for examination. 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.

## 2.0 BACKGROUND AND REGULATORY EVALUATION

Paragraph 50.55a(g) of 10 CFR specifies that the 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). The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden that could result if the requirements were imposed on the facility. 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 Component Identification

Code Class: 1
Examination Category: B-O
Item Number: B14.10
Component Numbers: Applicable CRD Housing Welds

2.1.2 Applicable Code Requirement

Article IWB-2000, "Examination and Inspection," Subarticle IWB-2500, "Examination and Pressure Test Requirements," Part (a) states that components shall be examined and tested as specified in Table IWB-2500-1. The method of examination for the components and parts of the pressure retaining boundaries shall comply with those tabulated in Table IWB-2500-1 except where alternate examination methods are used that meet the requirements of IWA-2240.

Paragraph 50.55a(b)(2)(xix) of 10 CFR, "Substitution of Alternative Methods," states that the provisions for the substitution of alternative examination methods, a combination of methods, or newly developed techniques in the 1997 Addenda of IWA-2240 must be applied. The provisions in IWA-2240, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph(b)(2) of this section are not approved for use.

Section XI, 1997 Addenda, paragraph IWA-2240, "Alternative Examinations," states that alternative examination methods, a combination of methods, or newly developed techniques may be substituted for the methods specified in this article provided the inspector is satisfied that the results are demonstrated to be equivalent or superior to those of the specified method.

Table IWB-2500-1, Examination Category B-O, requires a volumetric or surface examination to be performed on 10 percent of the peripheral CRD housing welds.

2.1.3 Impracticality of Compliance

Relief is requested from the requirements of ASME Code, Section XI, Table IWB-2500-1, because clearances between the support skirt and the CRDs restrict access for examination personnel to the inside of the support skirt, making the ASME Code-required surface examination impractical. There are 36 CRD housings on the periphery. Each housing has an upper and lower weld. A surface examination of 10 percent of these welds would require the welds in four housings to be examined. The upper CRD housing welds are located inside the reactor vessel skirt. The 12-inch diameter hole in the reactor vessel support skirt is too small to permit access for a surface examination. The lower CRD housing welds are accessible.

2.1.4 Burden Caused by Compliance

The CRDs and reactor vessel support skirt would require design modification to allow access for examination, to perform the ASME Code-required surface examination.

2.1.5 Proposed Alternative and Basis for Use

In lieu of performing the ASME Code-required examinations, CNS proposes to examine 100 percent of eight peripheral CRD lower housing welds during the inspection interval and visually examine (VT-2) the remaining CRD housing welds (upper and lower) in conjunction with the Class 1 system leakage test after each refueling outage. Using the provisions of this request as an alternative to the specific requirements of Table IWB-2500-1, identified above, will provide reasonable assurance of structural integrity of the welds. Therefore, pursuant to 10 CFR 50.55a(g)(5)(iii), Nebraska Public Power District requests relief from the specific Table IWB-2500-1 requirements identified in this request.

## 3.0 TECHNICAL EVALUATION

The licensee stated that ASME Code, Section XI, 2001 Edition, 2003 Addenda is the ISI code of record for the Cooper fourth 10-year ISI interval which commenced on March 1, 2006. Section XI, Table IWB-2500-1, Examination Category B-O, Item B14.10, CRD Housing Welds, Table IWB-2500-1, requires a surface examination to be performed on 10 percent of peripheral CRD housing welds. The licensee requested relief from performing 100 percent surface examinations on 10 percent of the periphery CRD housing welds.

Based on its review, the NRC staff has determined that clearances between the support skirt and the CRDs restrict access for examination personnel to the inside of the support skirt, making the ASME Code-required surface examination impractical. To perform the ASME Code-required surface examination, the CRDs and reactor vessel support skirt would require design modification to allow access for examination.

Since the surface examination of upper welds of peripheral CRD housings is impractical, the licensee has proposed to double the number of lower welds inspected and perform the VT-2 visual examinations. Surface examination of 100 percent of the eight peripheral CRD lower housing welds (equivalent to 100 percent of four CRD upper and lower welds required to be examined by the ASME Code) and the VT-2 visual examinations of the remaining CRD housing welds in conjunction with Class 1 system leakage testing after each refueling outage will detect a pattern of degradation if present. Therefore, the NRC staff finds that the licensee's proposed alternative provides reasonable assurance of structural integrity and safety of the subject welds.

## 4.0 CONCLUSION

The NRC staff concludes that compliance with the ASME Code-required surface examination requirements is impractical, and that the licensee has proposed an acceptable alternative to the ASME Code, Section XI, Table IWB-2500-1, Examination Category B-O, Item B14.10, CRD Housing Welds. Table IWB-2500-1, requires a surface examination to be performed on 10 percent of peripheral CRD housing welds. The licensee has proposed to examine eight peripheral CRD lower housing welds during the inspection interval and visually examine (VT-2) the remaining CRD housing welds (upper and lower) in conjunction with the Class 1 system leakage test after each refueling outage. The NRC staff has determined that the licensee's proposed alternative examination provides reasonable assurance of structural integrity of the CRD housing welds. Therefore, the relief is granted pursuant to 10 CFR 50.55a(g)(6)(i). Based on the discussion above, this relief is authorized by law and will not endanger life or

property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden that could result if the requirements were imposed.

All other ASME Code, Section XI, requirements for which relief 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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Date: October 13, 2006

Cooper Nuclear Station

cc:

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