



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 14, 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 RI-05 (TAC NO. MD0280)

Dear Mr. Edington:

By letter dated February 23, 2006, Nebraska Public Power District (the licensee) submitted Relief Request RI-05 for its fourth 10-year inservice inspection interval at Cooper Nuclear Station. This letter only addresses Relief Request RI-05. All other relief requests proposed in their submittal will be addressed in a future letter. On April 14, 2006, the Nuclear Regulatory Commission (NRC) requested the licensee to submit additional information regarding Relief Request RI-05. The licensee submitted the requested information in a letter dated May 4, 2006.

Based on the enclosed safety evaluation, Relief Request RI-05 is granted pursuant to 10 CFR 50.55a(g)(6)(i), on the basis that compliance with the Code requirements is impractical. The NRC staff concludes that the proposed VT-1 visual inspection in addition to the VT-2 inspection performed in lieu of the volumetric examination will provide reasonable assurance of the structural integrity for the subject welds. Therefore, granting relief pursuant to 10 CFR 50.55a(g)(6)(i) for the fourth 10-year interval 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 upon the licensee that could result if the requirements were imposed on the facility.

Sincerely,

A handwritten signature in dark ink, appearing to read "David Terao", is written over a faint, larger signature that appears to read "David Terao".

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

Cooper Nuclear Station

cc:

Mr. William J. Fehrman
President and Chief Executive Officer
Nebraska Public Power District
1414 15th Street
Columbus, NE 68601

Mr. Gene Mace
Nuclear Asset Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Mr. John C. McClure
Vice President and General Counsel
Nebraska Public Power District
P. O. Box 499
Columbus, NE 68602-0499

Mr. Paul V. Fleming
Licensing Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Mr. Michael J. Linder, Director
Nebraska Department of Environmental
Quality
P. O. Box 98922
Lincoln, NE 68509-8922

Chairman
Nebraska County Board of Commissioners
Nebraska County Courthouse
1824 N Street
Auburn, NE 68305

Ms. Julia Schmitt, Manager
Radiation Control Program
Nebraska Health & Human Services R & L
Public Health Assurance
301 Centennial Mall, South
P.O. Box 95007
Lincoln, NE 68509-5007

Mr. H. Floyd Gilzow
Deputy Director for Policy
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, MO 65102-0176

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 218
Brownville, NE 68321

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

Director, Missouri State Emergency
Management Agency
P. O. Box 116
Jefferson City, MO 65102-0116

Chief, Radiation and Asbestos
Control Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson
Suite 310
Topeka, KS 66612-1366

Mr. Daniel K. McGhee
Bureau of Radiological Health
Iowa Department of Public Health
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, IA 50319

Mr. Keith G. Henke, Planner
Division of Community and Public Health
Office of Emergency Coordination
930 Wildwood P.O. Box 570
Jefferson City, MO 65102

Jerry C. Roberts, Director of Nuclear
Safety Assurance
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

Mr. John F. McCann, Director
Licensing, Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601-1813

February 2006



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE INSERVICE INSPECTION PROGRAM

REQUEST FOR RELIEF NO. RI-05, FOURTH 10-YEAR INTERVAL

COOPER NUCLEAR STATION

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

1.0 INTRODUCTION

The Nuclear Regulatory Commission (NRC) staff has reviewed and evaluated the information provided by Nebraska Public Power District (the licensee) in their letter dated February 23, 2006, which proposed its fourth 10-Year Inservice Inspection Interval Request for Relief RI-05 for Cooper Nuclear Station (CNS). This safety evaluation (SE) only addresses Relief Request RI-05. All other safety relief requests proposed in their submittal will be addressed in a future SE. The NRC staff also reviewed the licensee's response to the NRC Request for Additional Information related to relief request RI-05 and evaluated the information presented.

2.0 REGULATORY REQUIREMENTS

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Code, "Rules for Inservice Inspection of Nuclear Power Plant Components," and applicable addenda as required by Title 10 of the *Code of Federal Regulation* (10 CFR) 50.55a(g), except where specific relief has been granted by the NRC pursuant to 10 CFR 50.55a(g)(6)(i).

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ASME Code of record for the CNS fourth 10-year ISI interval is the 2001 Edition through the 2003 Addenda of the ASME Code, Section XI. The CNS fourth 10-year ISI interval is scheduled to end on February 29, 2016.

3.0 BACKGROUND

3.1 System/Component(s) for which Relief is Requested

The affected components are Residual Heat Removal (RHR) Heat Exchanger 1A, Weld No. RHR-CA-3A and RHR Heat Exchanger 1B, Weld No. RHR-CA-3B. Both are Class 2 welds and follow the requirements of Examination Category C-A, Pressure Retaining Welds in Pressure Vessels, Item Number C1.10, in Table IWC-2500-1 of Section XI of the ASME Code.

3.2 Applicable Code Edition and Addenda

The Code of record for the fourth 10-year inservice inspection interval is the 2001 Edition through 2003 Addenda of Section XI of the ASME Code.

3.3 Code Requirement from which Relief is Requested

Relief is requested from ASME Code, Section XI, Table IWC-2500-1, "Examination Category," Examination Category C-A, Item No. C1.10, which requires a volumetric examination of shell circumferential welds in accordance with Figure No. IWC-2500-1 each inspection interval.

3.4 Licensee's Proposed Alternative Examination

In lieu of performing the ASME Code-required examinations, the licensee proposes to examine the accessible portions of the applicable RHR heat exchanger shell welds using a VT-1 methodology each inspection interval. Additionally, VT-2 visual examinations will be performed at the required frequency specified by Table IWC-2500-1, Category C-H.

3.5 Licensee's Basis for Requesting Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee has determined that compliance with the ASME Code requirements for performing ultrasonic examination of welds RHR-CA-3A and RHR-CA-3B is impractical because the distributor ring-to-shell weld in each heat exchanger is not accessible for performing either a volumetric or a surface examination. This is because the geometry of the weld and associated components provides a corner trap for ultrasonic signals and results in limited weld accessibility. The geometric reflectors inherent in this design prevent a meaningful ultrasonic examination from being performed on these welds. In order to comply with the ASME Code-required examinations of the welds, the licensee stated that the components would have to be redesigned or disassembled; therefore, imposing the requirement would be a burden on the licensee. The licensee stated that using the provisions of this relief request as an alternative to the specified requirements of Table IWC-2500-1 will continue to provide reasonable assurance of structural integrity of the welds.

4.0 TECHNICAL EVALUATION

By letter dated October 23, 1997, the NRC-approved Relief Request RI-05 for the third 10-year inspection interval to allow the use of VT-1 visual examinations in addition to VT-2 visual examinations as specified by Table IWC-2500-1, Category C-H, in lieu of the volumetric examinations of welds required by Table IWC-2500-1, Examination Category C-A. This was

due to restrictions and accessibility and was based on the examinations performed in the second 10-year inspection interval (Agencywide Documents Access and Management System's Legacy Library Accession Number 9711030046).

ASME Code, Section XI, subsection IWA-2211, VT-1 Examination, states in part, "VT-1 examination is conducted to detect discontinuities and imperfections on the surface of components, including such conditions as cracks, wear, corrosion, or erosion." Additionally, ASME Code, Section XI, subsection IWA-2212, VT-2 Examination, states in part, "VT-2 examination is conducted to detect evidence of leakage from pressure retaining components, with or without leakage collection systems, as required during the system pressure test."

By letter dated May 4, 2006, the licensee provided information indicating that a VT-1 visual examination of RHR-CA-3A was performed in combination with the ASME Code-required VT-2 visual examinations for both welds (RHR-CA-3A and RHR-CA-3B) during the third ISI interval. A VT-1 visual examination of RHR-CA-3B was not performed since it was not selected for examination in the third ISI interval. This is in accordance with the 1989 Edition of ASME Code, Section XI, Table IWC-2500-1, Note 3, which specified that in the case of multiple vessels of similar design, size, and service, the required examinations may be limited to one vessel or distributed among the vessels. It was stated that no reportable indications were noted during the VT-1 visual examination of RHR-CA-3A, and the results of the VT-2 visual examination were satisfactory for both welds. The licensee also indicated that RHR-CA-3A will be VT-1 examined in the fourth ISI interval.

The NRC determined that based on the geometry of the welds, the ASME Code-required examinations of the subject welds are impractical without redesign or disassembly of the component. As an alternative to the ASME Code-required examination, the licensee will perform a VT-1 visual examination on the subject welds. The staff concluded that this alternative, in combination with the ASME Code-required VT-2 visual examination, provides reasonable assurance of operational readiness of the subject welds.

Additionally, the licensee has indicated that the only potentially active degradation mechanism associated with these welds is fatigue. A search of operating experience revealed no industry reports of fatigue flaws in this weld configuration. A VT-1 visual examination would provide for the detection of surface breaking flaws because they can be readily detected by visual examination. Therefore, the staff determined that the proposed alternative provides an acceptable level of quality and safety for the duration of the fourth ISI interval for CNS.

5.0 CONCLUSION

On the basis of the information submitted, the NRC staff finds that the licensee has demonstrated that it is impractical to comply with the ASME Code-required volumetric examination as specified in Table IWC-2500-1, Examination Category C-A, as described in Relief Request RI-05. This conclusion is based on the information that the RHR heat exchanger shell welds are designed with a geometry that provides a corner trap for ultrasonic signals and has limited accessibility. The staff concludes that the proposed VT-1 visual inspection in addition to the VT-2 inspections performed under Table IWC-2500-1, Examination Category C-H, in lieu of the volumetric examination required in Table IWC-2500-1, Examination

Category C-A, will provide reasonable assurance of the structural integrity for the subject welds. Pursuant to 10 CFR 50.55a(g)(6)(i), the staff grants Relief Request RI-05 for the entire fourth 10-year inservice inspection interval at CNS.

The NRC staff concludes that granting Relief Request RI-05 for the fourth ISI interval 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 upon the licensee that could result if the requirements were imposed on the facility.

All other ASME Code Section XI requirements for which relief was not specifically requested and approved in Relief Request RI-05 remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: G. Ottenberg

Date: June 14, 2006

June 14, 2006

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

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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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