April 6, 2006

Mr. R. T. Ridenoure
Vice President - Chief Nuclear Officer
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
Post Office Box 550
Fort Calhoun, NE 68023-0550

SUBJECT: FORT CALHOUN STATION, UNIT NO. 1 - PUMP RELIEF REQUEST E-2 FOR THE FOURTH 10-YEAR PUMP AND VALVE INSERVICE TESTING PROGRAM (TAC NO. MD0227)

Dear Mr. Ridenoure:

By letter dated February 27, 2006, Omaha Public Power District (the licensee) submitted Pump Relief Request E-2 for its Fourth 10-year inservice testing program interval at the Fort Calhoun Station, Unit 1.

The Nuclear Regulatory Commission (NRC) staff has completed its review of the subject relief request. Pump Relief Request E-2 is authorized pursuant to Paragraph 50.55a(a)(3)(i) of Title 10 of the *Code of Federal Regulations* on the basis that the proposed alternative provides an acceptable level of quality and safety. The NRC staff's safety evaluation is enclosed.

If you have any questions regarding the safety evaluation, please contact Alan B. Wang at (301) 415-1445.

Sincerely,

/RA/

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

Docket No. 50-285

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST FOR RELIEF FROM THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

SECTION XI, INSERVICE TESTING PROGRAM

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By letter dated February 27, 2006, Omaha Public Power District (OPPD/the licensee), submitted a relief request for the fourth 10-year inservice testing (IST) program interval at Fort Calhoun Station (FCS), Unit 1. The licensee requested relief from a certain inservice test requirement of the 1998 Edition through 2000 Addenda of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code). The FCS fourth 10-year IST interval commenced in February 2004.

2.0 REGULATORY EVALUATION

Section 50.55a of Title 10 of the *Code of Federal Regulations* (10 CFR) requires that IST of certain ASME Code Class 1, 2, and 3 pumps and valves be performed at 120-month (10-year) IST program intervals in accordance with the specified ASME Code incorporated by reference in the regulations, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission pursuant to paragraphs (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a. In accordance with 10 CFR 50.55a(f)(4)(ii), licensees are required to comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in the regulations 12 months prior to the start of each 120-month IST program interval. In accordance with 50.55a(f)(4)(iv), IST of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to Nuclear Regulatory Commission (NRC) approval. Portions of editions or addenda may be used provided that all related requirements of the respective editions and addenda are met. In proposing alternatives or requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety; or (3) conformance is impractical for the facility. Section 50.55a authorizes the Commission to approve alternatives and to grant relief from ASME Code requirements upon making necessary findings. The NRC guidance contained in Generic Letter (GL) 89-04, “Guidance on Developing Acceptable Inservice Testing Programs,” provides alternatives to ASME Code requirements which are acceptable. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, Revision 1, “Guidance for Inservice Testing at Nuclear Power Plants.”

The FCS, Unit 1, fourth 10-year IST interval commenced in February 2004. The program was developed in accordance with the 1998 Edition through 2000 Addenda of the ASME OM Code. By letter dated November 5, 2002, OPPD requested relief from certain requirements of the ASME OM Code for its FCS, Unit 1, fourth 10-year IST interval. Revision 1 to the FCS IST Program Plan, modifying relief requests for certain ASME OM Code requirements, was submitted by letter dated December 5, 2003. By letter dated February 27, 2006, the licensee requested relief for the pump flow test requirement of ISTB-5121(c).

3.0 TECHNICAL EVALUATION

The Nuclear Regulatory Commission (NRC) staff's findings with respect to authorizing alternatives pursuant to 10 CFR 50.55a(a)(3)(i) are given below.

3.1 Pump Relief Request E-2

3.1.1 Code Requirements

The licensee requested relief from ISTB-5121(c), which requires that where system resistance cannot be varied, flow rate and pressure shall be determined and compared to their respective reference values. The relief requested applies to the following pumps:

Low Pressure Safety Injection (LPSI) Pumps SI-1A, SI-1B
High Pressure Safety Injection Pumps (HPSI) SI-2A, SI-2B
Containment Spray (CS) Pumps SI-3A, SI-3B, SI-3C

3.1.2 Licensee's Basis for Requesting Relief

The licensee states:

> The flow rate of the subject pumps cannot be measured when they are operating on minimum flow recirculation because flow instrumentation is not installed on the lines. The minimum recirculation flow lines are used when testing the pumps quarterly during power operations. For the LPSI and HPSI pumps, the only other available flow path is to the Reactor Coolant System (RCS) where such flow is undesirable during power operation. The only other available flow path for the CS pumps is into the CS headers, which would result in water damage to equipment in containment.

3.1.3 Licensee's Proposed Alternative Testing

The licensee states:

> FCS proposes the following alternative to the ISTB-5121(c) requirement:
>
> a. As a minimum, quarterly testing continues to measure pump differential pressure and vibration.
>
> b. During each refueling outage, a comprehensive test using Section ISTB-5123 of the ASME Code will be conducted under full or substantial flow rates. Pump

differential pressure, flow rate, and bearing vibration measurements will be taken.

c. Data from both quarterly and comprehensive tests will be monitored and analyzed as required by Section ISTB-6000 of the ASME Code.

This testing regimen provides an effective alternative to ISTB-5121(c).

3.1.4 Evaluation

The licensee requests relief from the flow test requirement of ISTB-5121(c) where Group A pump tests are required for the subject pumps. ISTB-5121(c) requires that flow rate and pressure be determined and compared to their respective reference values. The licensee proposes testing the pumps quarterly without flow measurements and performing comprehensive tests using ISTB-5123 of the ASME Code with flow measurements at each refueling outage.

The minimum flow recirculation line is the only path where flow can be established for the subject pumps during quarterly testing with the plant at power. The HPSI and LPSI pumps do not generate sufficient head to overcome RCS pressure at normal operating conditions, and injection of borated water into the RCS at power is undesirable from a reactivity control standpoint. The CS header is undesirable as a flow path for the CS pumps during non-accident conditions due to the potential for water damage to equipment in the containment. The system design is such that the recirculation flow path is the only path available for pump testing during power operations; however, flow rate cannot be measured due to lack of flow instrumentation in the recirculation line. The licensee has proposed performing quarterly tests via this non-instrumented flow path ensuring that, at a minimum, pump differential pressure and vibration measurements are continued. Additionally, comprehensive tests at full or substantial flow conditions will be performed during refueling outages or other cold shutdown conditions that meet IST frequency requirements. These tests will include flow measurements and shall meet the requirements of ISTB-5123. The NRC staff has determined that this alternative testing regimen is consistent with Position 9 of Attachment 1 to GL 89-04 and assures pump operability.

4.0 CONCLUSION

The OPPD Relief Request E-2 has been reviewed by the NRC staff and based on the above evaluation, the NRC staff has concluded that the licensee's alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) on the basis that the proposed alternative provides an acceptable level of quality and safety for quarterly Group A pump testing activities. This alternative is authorized for the remainder of the fourth 10-year IST interval.

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

Principal Contributor: J. McHale

Date: April 6, 2006

Ft. Calhoun Station, Unit 1
cc:
Winston & Strawn
ATTN: James R. Curtiss, Esq.
1400 L Street, N.W.
Washington, DC 20005-3502

Chairman
Washington County Board of Supervisors
P.O. Box 466
Blair, NE 68008

Mr. John Hanna, Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 310
Fort Calhoun, NE 68023

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

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. David J. Bannister, Manager
Fort Calhoun Station
Omaha Public Power District
Fort Calhoun Station FC-1-1 Plant
P.O. Box 550
Fort Calhoun, NE 68023-0550

Mr. Joe L. McManis
Manager - Nuclear Licensing
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, NE 68023-0550

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

Mr. Daniel K. McGhee

January 2006