

March 24, 2006

Mr. David A. Christian  
Senior Vice President and  
Chief Nuclear Officer  
Innsbrook Technical Center  
5000 Dominion Boulevard  
Glen Allen, VA 23060-6711

SUBJECT: KEWAUNEE POWER STATION - REQUEST FOR RELIEF FROM THE  
REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL  
ENGINEERS BOILER AND PRESSURE VESSEL CODE (REVISED RELIEF  
REQUEST VRR-05) FOR THE FOURTH 10-YEAR PUMP AND VALVE  
INSERVICE TESTING PROGRAM (TAC NO. MC9617)

Dear Mr. Christian:

By letter dated January 23, 2006, Dominion Energy Kewaunee, Inc. (the licensee), submitted a request for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the code). The revised Relief Request VRR-05 is for the Fourth 10-year inservice testing (IST) program interval at Kewaunee Power Station, which commenced on February 16, 2005.

The U.S Nuclear Regulatory Commission staff has completed its review of the submitted relief request. Relief Request VRR-05 is authorized pursuant to Title 10 of the *Code of Federal Regulations*, Part 50, Section 50.55a(a)(3)(ii) based on the determination that (1) compliance with the specified Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety and (2) the proposed alternative provides reasonable assurance that the components are operationally ready. Consequently, the proposed alternative is authorized for the fourth 10-year IST interval.

Sincerely,

**/RA by Peter Tam for/**

L. Raghavan, Branch Chief  
Plant Licensing Branch III-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-305

Enclosure:  
Safety Evaluation

cc w/encls: See next page

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Kewaunee Power Station

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOURTH 10-YEAR INTERVAL INSERVICE TESTING (IST) PROGRAM

REVISED RELIEF REQUEST VRR-05

DOMINION ENERGY KEWAUNEE, INC.

KEWAUNEE POWER STATION

DOCKET NO. 50-305

1.0 INTRODUCTION

By letter dated January 23, 2006, Dominion Energy Kewaunee, Inc. (the licensee), submitted revised Relief Request VRR-05 for the fourth 10-year IST program interval at Kewaunee Power Station (Kewaunee). The Kewaunee fourth 10-year IST interval commenced on February 16, 2005. The licensee requested relief from certain inservice test requirements 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)*. U.S. Nuclear Regulatory Commission (NRC) staff evaluation of Relief Request VRR-05 is contained herein.

2.0 REGULATORY EVALUATION

Title 10 *Code of Federal Regulations*, (10 CFR) Part 50, Section 50.55a, 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 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. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to 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 Kewaunee, fourth 10-year IST interval commenced February 16, 2005. The IST program was therefore developed in accordance with the 1998 Edition through 2000 Addenda of the ASME OM Code. By letter dated January 23, 2006, the licensee requested relief from certain requirements of the OM Code for Kewaunee's fourth 10-year IST interval.

The NRC staff findings with respect to granting or denying the IST program relief requests are given below:

### 3.0 TECHNICAL EVALUATION

#### 3.1 Valve Relief Request VRR-05

##### 3.1.1 Code Requirements

Paragraph ISTC-3700, Position Verification Testing, of the ASME OM Code requires that valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated.

##### 3.1.2 Specific Relief Requested

The licensee requested relief from the Code requirements of paragraph ISTC-3700 for safety injection valves SI-350A and SI-350B.

##### 3.1.3 Licensee's Basis for Requesting Relief

Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is being requested on the basis that compliance with the specified requirements of the Code would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Valves SI-350A and B are located within separate enclosures outside containment, in the lines leading from containment sump "B" to the suction of the residual heat removal pumps. The valves perform an active safety function in the open position. The valves must be capable of opening, by remote manual switch actuation, when transitioning from the injection mode of safety injection to the recirculation mode for long-term core cooling. The valves also perform an active safety function in the closed position and are designated as containment isolation valves for penetrations 30W and 30E per Updated Safety Analysis Report Table 5.2-2. The valves must be capable of closure by remote manual switch actuation to maintain containment integrity should an automatic system malfunction occur.

Local observation of the valves during the performance of position indication verification requires disassembly and removal of the enclosures. Subsequent to reassembly, the enclosures require leak testing in accordance with 10 CFR Part 50, Appendix J. The additional activities involved with local observation are time consuming and performed in a Radiation

Area. It is the licensee's position that compliance with the 2-year Code requirement for local observation of valve position indication would result in a hardship without a compensating increase in the level of quality and safety.

#### 3.1.4 Licensee's Proposed Alternative Testing

Valves SI-350A and B will have remote position indication verification performed on a 36-month frequency, with a 25 percent extension allowed for scheduling flexibility. This verification will normally be performed coincident with preventive maintenance on the valve motor operators, which is scheduled on a 36-month frequency. The 36-month frequency, plus 25 percent for scheduling flexibility, is based on past preventive maintenance and inspection results, and corresponds with every other 18-month refueling cycle. In addition, the valves will be leak tested on a refueling outage frequency to ensure valve closure and position indication. These activities in conjunction with quarterly monitoring of valve stroke times will ensure reliable operation of the valves, including remote position indication.

#### 3.1.5 NRC Staff's Evaluation of Valve Relief Request No. VRR-05

As explained below, the NRC staff finds that requiring the licensee to meet the Code-required frequency for local verification of valve position indication would result in a hardship without a compensating increase in the level of quality and safety.

Paragraph ISTC-3700, Position Verification Testing, of the ASME OM Code, requires that valves with remote position indicators be observed locally at least once every 2 years to verify that valve operation is accurately indicated. In lieu of the 2-year test, the licensee proposes to verify the remote position indication of valves SI-350A and B on a 36-month frequency, plus 25 percent for scheduling flexibility. In addition, the closed position indication of the valves will be verified by leak testing on a refueling outage frequency, and the open position indication will be verified by monitoring the results of quarterly valve opening stroke-time tests.

The subject safety injection valves are located outside the containment building in separate enclosures. To perform the required local test, the enclosures must be disassembled and removed. Following the test, the enclosures need to be reassembled and leak tested in accordance with Appendix J. The additional activities involved with local observation are time consuming and performed in a Radiation Area. Therefore, the licensee proposes to perform the required local verification in conjunction with preventive maintenance on the valve motor operators, which is performed on a 36-month frequency. The NRC staff finds that requiring the licensee to meet the Code required frequency for local verification of valve position indication would result in a hardship without a compensating increase in the level of quality and safety.

The licensee's proposed alternative to verify remote position indication of these valves on a 36-month frequency, plus 25 percent for scheduling flexibility, would provide the Code-required information, but on an extended interval. To supplement the 36-month test, plus 25 percent for scheduling flexibility, the licensee proposes to verify the closed position indication of the valves by performing a leak test on a refueling outage frequency. Similarly, the open position would be verified by monitoring results of the quarterly open valve stroke time tests.

As an alternative to the subject Code requirements, the proposed leak testing would confirm that the valve is in the closed position, which can be used to verify the closed position indication

of the valve. In addition, the proposed stroke-time tests would confirm that the valve moves from a closed to open position within an acceptable stroke time. Finally, the stroke time test would indicate that the valve is in an acceptable open position, which can be used to verify the open position indication of the valve. The NRC staff finds that the proposed alternative consisting of indications gained from the leak and stroke-time tests, provides reasonable assurance of the valve position indication during the requested extended interval that is comparable to assurance gained through compliance with Code requirements, and provides reasonable assurance that the components are operationally ready. Therefore, compliance with Code requirements would cause an additional expenditure of resources to dismantle the valve enclosure, with resulting radiation exposure to licensee personnel, without a significant increase in quality and safety. Accordingly, the licensee's proposed alternative is acceptable.

#### 4.0 CONCLUSION

Based on the above evaluation, the NRC staff finds acceptable, the licensee's proposed alternative to perform the Code required test on a 36-month frequency, plus 25 percent for scheduling flexibility, and verify the remote position indication of the affected valves indirectly by performing leak testing every refueling outage and a stroke-time test quarterly. Accordingly, Relief Request VRR-05 is authorized pursuant to Title 10 of *Code of Federal Regulations*, Part 50, Section 50.55a(a)(3)(ii) based on the determination that (1) compliance with the specified Code requirements results in hardship or unusual difficulty without a compensating increase in the level of quality and safety; and (2) the proposed alternative provides reasonable assurance that the components are operationally ready. Consequently, the proposed alternatives is authorized for the fourth 10-year IST interval.

Principal Contributor: Keith Poertner

Date: March 24, 2006