

November 9, 2000

Mr. J. V. Parrish
Chief Executive Officer
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P.O. Box 968 (Mail Drop 1023)
Richland, WA 99352-0968

SUBJECT: WNP-2 - RELIEF REQUEST RP08 FOR THE PUMP AND VALVE INSERVICE TESTING PROGRAM (TAC NO. MA9064)

Dear Mr. Parrish:

By letter dated May 16, 2000, you requested relief from the inservice testing requirements of Section XI of the American Society of Mechanical Engineers (ASME) Code for Class 1, 2, and 3 pumps and valves (Relief Request RP08).

Based on its review, the staff finds that the proposed alternative test consisting of a low pressure alarm on the reactor core isolation cooling pump discharge header and a monthly verification of flow through a high point vent provides reasonable assurance of operational readiness of the affected pump. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the proposed alternative is authorized for the second 10-year interval for WNP-2 on the basis that compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. A copy of the related Safety Evaluation is enclosed.

Sincerely,

/RA/

Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure: Safety Evaluation

cc w/encl: See next page

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WNP-2

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO INSERVICE TESTING PROGRAM RELIEF REQUEST

ENERGY NORTHWEST

WNP-2

DOCKET NO. 50-397

1.0 INTRODUCTION

The *Code of Federal Regulations*, 10 CFR 50.55a, requires that inservice testing (IST) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 pumps and valves are performed in accordance with Section XI of the ASME *Boiler and Pressure Vessel Code* (the Code) and applicable addenda, except where alternatives have been authorized or relief has been requested by the licensee and granted by the Commission. Sections (a)(3)(i), (a)(3)(ii), or (f)(6)(i) of 10 CFR 50.55a authorize the Commission to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings. In proposing alternatives or requesting relief, the licensee must demonstrate, respectively, 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 its facility.

Guidance related to the development and implementation of IST programs is given in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," issued April 3, 1989, and its Supplement 1 issued April 4, 1995. Also see NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," and NUREG/CR-6396, "Examples, Clarifications, and Guidance on Preparing Requests for Relief from Pump and Valve Inservice Testing Requirements."

The 1989 Edition of the ASME Code, Section XI is the applicable Code of record for the second 10-year interval IST program at WNP-2. The Subsection IWV of the 1989 Edition gives the requirements for IST of valves and references Part 10 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-10) as the rules for IST of valves. OM-10 replaces specific requirements in previous editions of Section XI, Subsection IWV, of the ASME Code. Subsection IWP of the 1989 Edition, which gives the requirements for IST of pumps, references Part 6 of the American National Standards Institute/ASME *Operations and Maintenance Standards* (OM-6) as the rules for IST of pumps. OM-6 replaces specific requirements in previous editions of Section XI, Subsection IWP, of the ASME Code.

By letter dated May 16, 2000, Energy Northwest (the licensee) submitted pump Relief Request RP08 for WNP-2 and requested relief from the pressure and flow measurement requirements of ASME OM-6 for the reactor core isolation cooling (RCIC) system. The licensee stated that the safety classification of the RCIC water leg pump was changed such that the pump is now

considered to have an active safety-related function. The purpose of the water leg pump is to maintain the RCIC discharge piping full of water to prevent water hammer and minimize the time between RCIC pump start and injection into the reactor vessel. This is referred to as the RCIC keep fill system. Because of the change in safety classification, the RCIC keep-fill pump is in the licensee's IST pump and valve testing program.

The staff has completed its review of the relief request and provides the following evaluation.

2.0 PUMP RELIEF REQUEST RP08

Relief is requested for the RCIC keep-fill pump (RCIC-P-3) from the testing requirements of pressure and flow measurements as required by Paragraph 5.2 of OM-6. The licensee proposed to measure vibration in accordance with OM-6, trend vibration data, and verify that the RCIC pump discharge lines are within allowable pressure limits by a low pressure alarm on RCIC discharge header.

2.1 Licensee's Basis for the Relief Request

The licensee states:

The RCIC keep fill system does not have flow instrumentation and pressure taps to measure the flow rate and the differential pressure as required by the Code. Use of a clamp-on flow meter does not provide an accurate and repeatable flow rate due to the low flow rate and Code required accuracy limitations. Measurement of these parameters is necessary to comply with flow and pressure requirements of sections 5.2(b) and 5.2(d) of OM Part 6. System modification to install flow instrumentation and differential taps places undue burden on WNP-2 without demonstrating any increase in the level of plant safety.

The RCIC-P-3 pump is in continuous operation and its performance is monitored in the control room by a low pressure alarm on RCIC pump discharge header.

Compliance with vibration measurement and analysis as described in section 5.2(d) of OM Part 6 will be maintained. This vibration data is trended to assess pump performance and predict required corrective maintenance.

The preventive maintenance program for RCIC-P-3 includes additional activities to detect degradation and ensure continued operational readiness. Pump oil level is regularly monitored and the pump is periodically refurbished to maintain its reliability. The Code required vibration testing and the preventive maintenance activities ensure an acceptable level of safety and quality.

WNP-2 Technical Specification SR 3.5.3.1 verifies the system is full by verifying water flow through a high point vent on a monthly basis.

2.2 Proposed Alternate Testing

The licensee states:

The vibration measurements shall be taken under operating conditions and evaluated in accordance with OM Part 6. Vibration data shall be analyzed by comparison to the corresponding reference values. Deviation from the reference values shall be compared with the limits in Table 3 and corrective actions taken as specified in Paragraph 6.1.

2.3 Evaluation

Paragraph 5.2 of OM-6 requires that an inservice test be conducted with the pump operating at specific reference conditions. The resistance of the system shall be varied until the flow rate equals the reference value. The pressure shall then be determined and compared to its reference value. Alternatively, the flow rate can be varied until the pressure equals the reference value and the flow rate shall be determined and compared to the reference flow rate value.

At WNP-2, which is in the second 10-year interval IST program for the plant, instrumentation is not installed in the keep fill system for directly measuring the pressure and flow rate. Imposing the Code requirements would result in a hardship for the licensee because it would require system modification and installation of on-line flow devices and pressure taps. In lieu of a Code-required pressure and flow measurement, the licensee proposes to perform vibration measurement under normal operating condition. The vibration results will be trended and evaluated in accordance with OM-6.

The safety function of the keep-fill pump is to keep the RCIC pump discharge header piping in a filled condition to prevent a water hammer upon a pump start. The actual output and hydraulic performance of the pump are not critical to the safety function, as long as the pump is capable of maintaining the piping full of water. The RCIC-P-3 pump is in continuous operation and the RCIC pump discharge header has a low pressure alarm. The alarm would promptly alert plant operators whenever the pump does not maintain the piping pressure to a set alarm level. The WNP-2 Technical Specifications also require a verification of flow through a high point vent to assure that the piping is full of water. This is performed on a monthly basis which is more frequent than OM-6 requires for testing. The staff finds that the proposed alternative test of trending vibration data, the low pressure alarm in RCIC discharge header, and monthly verification of flow through high point vent provides ample time for the licensee to take corrective actions before the pump fails, and, thus, provides reasonable assurance of operational readiness of the affected pump.

3.0 CONCLUSION

Pursuant to 10 CFR 50.55a(a)(3)(ii), the proposed alternative is authorized for the second 10-year interval IST program at WNP-2 on the basis that compliance with the Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of

quality and safety. The licensee's proposed alternative provides reasonable assurance of operational readiness of the pump.

Principal Contributor: Y.S. Huang

Date: November 9, 2000