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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST FOR RELIEF FROM ASME XI (IWA-5244)
WASHINGTON PUBLIC POWER SUPPLY SYSTEM
NUCLEAR PROJECT NO. 2
DOCEKT NO. 50-397

INTRODUCTION

Specification 4.0.5 of the Technical Specification for Washington Nuclear Plant No. 2 states that the inservice inspection as ASME code Class 1, Class 2 and Class 3 components shall be performed in compliance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

In a letter dated August 30, 1988, the Washington Public Power Supply System (the licensee) requested relief for Washington Nuclear Plant No. 2 (WNP-2) from the provision of paragraph IWA-5244 of Section XI of the ASME Boiler and Pressure Vessel Code requiring a test to determine the change in flow between ends of non-isolatable, redundant buried piping. The applicable Code is the 1980 Edition including Winter 1980 Addenda.

EVALUATION

RELIEF REQUEST NO. ISI-2-008

System - The buried piping in the Service Water System (SW) was designed in compliance to the requirements of ANSI B31.1, Seismic Category II. The SW was designed to a pressure of 165 psig and a temperature of 140°F. The buried portions of the following loops are affected by this request:

SW Loop A Supply 20-in. SW(1)-2
SW Loop A Supply 20-in. SW(2)-2

REQUIREMENT - Paragraph IWA-5244 of ASME Section XI requires a test to determine the change in flow between ends of non-isolatable, redundant buried piping.

BASIS FOR RELIEF - The design of the piping in the service water pump houses prevents direct flow monitoring. The close proximity of the pumps, valves and elbows will not allow the establishment of sufficient stable flow to permit reliable measurement. The measurement of the flow at the pump house end of the buried piping is impossible to measure without extensive plant modification. Such modification would constitute a significant burden in recognition of alternatives for ensuring integrity of the affected systems.

ALTERNATE EXAMINATION - Instead of the requirement of paragraph IWA-5244, WNP-2 will verify that the flow during operation is adequate to perform the systems required function. In lieu of paragraph IWA-5244 requirement, the flow into the Service Water System will be determined and the pump discharge pressure measured on a quarterly basis. A walkdown of the buried pipe, will be conducted for observance of leakage in the buried pipe at the time the Inservice Test Procedures (Article IWP-3000) are conducted on the system. In addition, the return lines to the heat sink will be monitored during reactor operation pursuant to paragraph IWA-5244(c).

EVALUATION

The Service Water System provides cooling for plant equipment essential to a safe reactor shutdown in the event of a design basis loss-of-coolant accident. The system provides adequate cooling water for heat removal from the following equipment:

a) Reactor decay heat during normal shutdown;
b) Reactor decay heat and diesel generators in case of transients and/or accident conditions;
c) Essential pump motors and air handling cooling coils;
d) Fuel pool when normal cooling is lost; and
e) Containment flooding, if required.

The components of the Service Water System were tested and inspected at the manufacturers plant for conformance to purchase specification. After installation and prior to plant startup, the system was hydrostatically tested to ensure leak tightness. The preoperational testing included testing of automatic controls for activation at the proper setpoints, and the calibration of instruments and alarms.

Pursuant to the requirements of Subsection IWP of Section XI, the pumps in the service water loops are tested quarterly to ensure that they are operating correctly and providing adequate flow at the pump exit. Paragraph IWA-5244 requires that a test be conducted to determine the change in flow between the ends of buried components. In cases where an annulus surrounds the buried components, the areas at each end of the buried component shall be visually examined for evidence of leakage in lieu of a flow test.

The licensee has committed to verify that the pump flow into the Service Water System during reactor operation is adequate to perform the required functions of the Service Water System. In addition, an examination will be made consisting of a walkdown of the buried pipe between the pump house and the reactor building to detect leakage when performing the requirements of Subsection IWP. The return lines to the heat sink will be monitored to verify that the flow during reactor operation is not impaired as required by paragraph IWA-5244(c).

CONCLUSION

We conclude that the test required by paragraph IWA-5244 of Section XI to measure flow in the buried pipe of the Service Water System is impractical to perform at WNP-2. The staff has reviewed the request for relief from Code-required testing requirements. With the alternative methods identified in the request and imposed through this document pursuant to 10 CFR(g)(6)(ii), the staff concludes that granting relief will still provide reasonable assurance of the service water piping integrity. The staff has determined that pursuant to 10 CFR 50.55a(g)(6)(i) granting relief where the Code requirements are impractical is authorized by law and will not endanger life

or property or the common defense and security. The staff has also concluded that granting relief is otherwise in the public interest considering the burden that could result if the requirements were imposed on the facility.

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