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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORT FOR RELIEF FROM PRESSURE TEST REQUIREMENTS FOLLOWING

MODIFICATION AND REPAIR OF THE MAIN AND AUXILIARY FEEDWATER PIPING

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

1.0 BACKGROUND

Section XI of the ASME Boiler and Pressure Vessel Code requires that pressure boundary components be subjected to nondestructive examinations and pressure tests after repair or modification. Consumers Power Company (CPCo), the licensee, modified the auxiliary feedwater lines at the Palisades Plant in the Fall of 1981. The purpose of the modification, rerouting the auxiliary feedwater lines from the main feedwater lines directly to the steam generators, was to eliminate or significantly reduce the potential for water hammer during auxiliary feedwater operation. During a recent inspection, the licensee discovered damaged pipe hangers and a cracked thermal sleeve and weld in the feedwater lines. The damaged hangers and piping will be repaired and the auxiliary feedwater piping modified as corrective actions to the failure problem. In repairing or modifying the auxiliary and main feedwater lines, the licensee determined that the hydrostatic pressure test requirements of the 1977 Edition through Summer 1978 Addenda of Section XI of the ASME Code were impractical to perform. By letter dated May 14, 1984, the licensee requested relief from the requirements and provided information supporting the request. Pursuant to 10 CFR 50.55a(g)(6)(i), the request and supporting information provided will be evaluated to determine if the necessary findings can be made to grant relief from the hydrostatic pressure test requirements.

2.0 RELIEF REQUEST

Relief from the hydrostatic pressure test requirements of the 1977 Edition through Summer 1978 Addenda of Section XI of the ASME Code is requested after modification and/or repair of the auxiliary and main feedwater lines.

3.0 CODE REQUIREMENT

(IWA5214) A component repair or replacement or a system alteration shall be pressure tested prior to resumption of service.

(IWC5222) The system hydrostatic test pressure shall be at least 1.25 times the system pressure P_{sv} for systems with Design Temperature above 200°F.

4.0 LICENSEE'S BASIS FOR REQUESTING RELIEF

For the Palisades auxiliary feedwater piping, the installation welds are not isolable from the secondary side of the steam generators. Palisades Technical Specifications permit a total of eight (8) hydrostatic tests (1250 psia, no temperature specification) in the projected 40 year life. One hydro is to be conducted every 10 years; one hydro was performed for construction acceptance. Technical Specification requirements therefore account for a total of five (5) of the available eight (8) hydros. The current alteration is the fourth time the feedwater system has been cut into since plant startup. Each previous occasion has utilized an inservice leak test for preservice acceptance (in conjunction with NDE). This alteration will utilize a 100% RT PSI. It is considered that the remaining three (3) available hydros should be withheld for contingencies or water hammer consideration.

Performing the required hydrostatic test on the feedwater piping subsequent to the modification would be extremely difficult, expensive and impractical due to the following additional items:

A. The inability to maintain pressure due to potential leakage through the feedwater isolation valves, main steam isolation valve and other valves connected to the system.

B. Additional time and effort to pin and block the main steam constant support and variable spring hangers.

C. Potential for placing excess stress on the steam generator shells.

D. Potential for damage to system instrumentation, or considerable time delay due to additional efforts required to isolate or remove instrumentation.

E. Potential for damage to the main steam system and its hangers due to static loads caused by water solid condition.

F. Potential for damage to the steam generator tube bundles.

G. Isolation and preparation of the system would result in additional radiation exposure to personnel.

H. In addition to the foregoing, the alternate examinations specified below will provide a level of confidence and quality equal to or better than the required testing per ASME Code.

5.0 ALTERNATE EXAMINATIONS

Based on the above considerations, CPCo has performed a fabrication/installation acceptance and preservice inspection consisting of 100% radiography (RT) and an initial service leak test in lieu of a hydro.

6.0 STAFF EVALUATION AND CONCLUSION

The welds made in the modification and/or repair of the auxiliary and main feedwater lines cannot readily be isolated from the steam generators and main steam lines. To comply with the Code hydrostatic test pressure requirements would entail flooding the steam generators and main steam line, gagging safety and relief valves, providing additional support for the main steam line, and pressurizing the steam and feedwater systems to 1.25 times the system service pressure. Considering the hardships that the licensee would encounter in implementing the Code requirements versus the assurance of the systems structural integrity provided by the licensee's alternate examination and test, the staff finds the Code requirements impractical to perform; that imposition of the Code requirements would not provide a commensurate gain in plant safety or a significant increase in assurance of the main and auxiliary feedwater lines' structural integrity following repair and/or modification over that provided by examinations and test to which the licensee committed. The staff, therefore, concludes that relief from the requirements may be granted.

The NRC staff has determined that the granting of this relief is authorized by law and will not endanger life or property of the common defense and security, and is otherwise in the public interest considering the burden that would result if the requirements were imposed on the licensee.

We have determined that the granting of relief does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that granting relief involves an action which is insignificant from the standpoint of environmental impact and that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the granting of this relief.

We have concluded, based on the considerations discussed above, that: (1) because granting this relief does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, it does not involve a significant hazards

consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) the activities authorized by the grant of relief will not be inimical to the common defense and security or to the health and safety of the public.

7.0 ACKNOWLEDGEMENT

G. Johnson prepared this evaluation.

Date: June 26, 1984