



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CONSUMERS POWER COMPANY

PALISADES NUCLEAR POWER PLANT

DOCKET NOS. 50-255

NUREG-0820 SUPPLEMENT NO. 1 SECTION 2.3

EFFECTS OF PIPE BREAKS ON STRUCTURES, SYSTEMS AND COMPONENTS

INSIDE CONTAINMENT

INTRODUCTION

Section 2.3 of Supplement No. 1 to the Integrated Plant Safety Assessment Report for Palisades (IPSAR, NUREG-0820) indicates that two postulated pipe breaks (the letdown line and charging line) could cause damage to the instrument lines for steam generator pressure and level indication as well as to the instrument lines for the pressurizer pressure and level indication. These potential adverse effects were identified in the initial pipe break evaluation using the Effect Oriented Approach, because detailed stress information for these lines was not available at that time. The staff concluded that the loss of these monitoring instruments is unacceptable and, therefore, required that the licensee provide protection for these lines.

DISCUSSION

To ensure adequate protection, the licensee conducted a walkdown inside containment near the postulated break areas. The licensee determined that the instrument lines could be shielded to provide the necessary protection in the event of a pipe break. Consequently, in a letter dated December 15, 1983, the licensee proposed the design and installation of shields around the instrument lines of concern that would be completed during the Palisades refueling outage in 1985.

Subsequently, the licensee performed a detailed piping analysis using the mechanistic criteria for selecting pipe break locations to show that these lines in the vicinity of the affected instrument lines will not break. These analyses were submitted on May 31, 1985. The analyses were performed for the Letdown Line EG-2-2" from Penetration No. 36 to the Letdown Heat Exchanger E-58 Nozzle, and for the Charging Line CC-7-2" from Penetration No. 45 to the Regenerative Heat Exchanger Nozzle E-56, using the 'ADLPIPE' computer program. The results of these analyses demonstrate calculated pipe stresses for both the Letdown Line and the Charging Line that meet the SEP pipe break criteria (Enclosure 2 to letter from D. Crutchfield, NRC, to D. Hoffman,

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CPCo, dated December 4, 1981). On this basis, the licensee concluded that breaks at these locations need not be postulated and, therefore, there is no need to shield these lines as previously committed.

CONCLUSION

The staff has reviewed the licensee's detailed piping analyses for the subject lines and finds that they conform with the SEP guidelines for mechanistically selecting pipe break locations. The results of these analyses demonstrate stresses sufficiently low that pipe breaks need not be postulated for these locations. On this basis, the staff concludes that the issue identified in Section 2.3 of NUREG-0820, Supplement 1, has been acceptably resolved.

Principal Contributors:
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