> Mr. Frank Linder General Manager Dairyland Power Cooperative 2615 East Avenue South LaCrosse, Wisconsin 54601

Dear Mr. Linder:

SUBJECT: LACKOSSE - SEP TOPIC XV-15, INADVERTENT OPENING OF A PWR PRESSURIZER SAFETY/RELIEF VALVE OR A BWR SAFETY/RELIEF VALVE

In your letter dated June 30, 1981 (LAC-7637) you submitted a safety assessment report on the above topic. The staff has reviewed your assessment and our conclusions are presented in the enclosed safety evaluation report. Our report completes this topic evaluation for the LaCrosse Boiling Water Reactor (LACBWR).

The enclosed safety evaluation will be a basic input to the integrated cafety assessment for your facility. The assessment may be revised in the future if your facility design is changed or if NRC criteria relating to chis topic are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield, Chief Operating Reactors Branch No. 5 Division of Licensing SEO4 /// DSu us re (26) ADDI (...Complime

Enclosure: As stated

cc w/enclosure: See next page

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#### Mr. Frans Linder

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### TOPIC XV-15 INADVERTENT OPENING OF A PWR PRESSURIZER SAFETY/RELIEF VALVE OR A BWR SAFETY/RELIEF VALVE

# LA CROSSE BOILING WATER REACTOR

### I. INTRODUCTION

The inadvertent opening of a safety/relief valve results in a reactor coolant inventory decrease and a decrease in reactor coolant system pressure. The LACBWR design does not provide for safet /relief valve discharge into a suppression pool; therefore, valve discharge is to the containment and the containment building is automatically isolated on high containment building pressure. Operator action is taken to trip the reactor. The objective of this evaluation is to confirm that the plant responds to the safety/relief valve opening transient in such a way that the criteria regarding fuel damage and system pressure are met.

## II. EVALUATION

Three spring-loaded safety values protect the LACBWR primary system from transient overpressur zation conditions in accordance with the ASME Boiler and Pressure Vessel Code. The location of the values in a steam line is such that an open value would be equivalent to a steam line break. Following opening of the value, the turbine inlet governor values partially close to maintain system pressure. If no manual action is taken, the reactor would trip on low reactor pressure and low reactor water level. Under these conditions, the low reactor water level would initiate the High Pressure Core Spray (HPCS). When the reactor vessel pressure decreases to 150 mig, the Alternate Core Spray (ACS) would be activated. The combined operation of the HPCS and ACS provides long term cooling of the core. Small break results in the LACBWR LOCA analysis have been extrapolated from large and intermediate size breaks as discussed in Reference 1. The adequacy of the LACBWR ECCS evaluation model was discussed in Reference 2. This evaluation was made with respect to the requirements for analysis of blowdown phenomena, as prescribed in 10 CFR 50, Appendix K. The LOCA results have shown that the HPCS is adequate, even with a single failure, to prevent fuel damage.

In addition, the licensee has provided additional information to demonstrate that the consequences of a stuck open relief value are less severe than other types of cransients (Reference 3). In these analyses, the Critical Power Ratio (CPR) stays above 1.32 and the core remains covered.

The relief valve setpoints are a combination of 1390 and 1426 psig. Normal primary coolant system pressure is 300 psig. Operation of the safety valves will maintain system pressure below 110 percent of the design pressure of 1540 psia.

## III. CONCLUSIONS

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As part of the SEP review of LACBWR, the inadvertent opening of a safety/relief valve was reviewed against the acceptance criteria of SRP Section 15.6.1. Although this accident condition has not been analyzed specifically, the plant response is bounded by other transients such that the criteria regarding fuel damage and system pressure are met.

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# REFERENCES

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- DPC Letter LAC-6705, Linder to D. Ziemann, SUBJECT: Information on Small Break Analysis, dated December 20, 1979.
- NES-81A0244, "Comparison of LACBWR ECCS Results to AEC Final Acceptance Criteria," December 9, 1974.
- 3. NES-81A0025, "Transient Analyses for LAC3WR Reload Fuer", February 18, 1977.