



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATING TO AMENDMENT NO. 112 TO FACILITY OPERATING LICENSE NO. DPR-43

WISCONSIN PUBLIC SERVICE CORPORATION

WISCONSIN POWER AND LIGHT COMPANY

MADISON GAS AND ELECTRIC COMPANY

KEWAUNEE NUCLEAR POWER PLANT

DOCKET NO. 50-305

1.0 INTRODUCTION

By letter dated March 31, 1994, Wisconsin Public Service Corporation (WPSC), the licensee, requested a revision to the Kewaunee Nuclear Power Plant (KNPP) Technical Specifications (TS). The proposed amendment would revise the TS by incorporating operability and surveillance requirements for the recently installed Auxiliary Feedwater Pump Low Discharge Pressure Trip instrumentation. Proposed surveillance requirements would be added to Table TS 4.1-1, "Minimum Frequencies for Checks, Calibrations and Test of Instrument Channels." TS 3.4, "Steam and Power Conversion System," would be revised to explicitly link operability of the associated Auxiliary Feedwater Pump Low Discharge Pressure Trip channel to operability of the associated auxiliary feedwater pump. In addition, minor format inconsistencies in TS 3.4.b.1.A and 3.4.b.1.B would be corrected.

2.0 BACKGROUND

As part of the assessment of the TMI-2 accident, the staff evaluated AFW systems. One result of this evaluation was the recommendation that licensees' plants with unprotected normal AFW system water supplies should evaluate the design of their AFW systems to determine if automatic protection of the pumps is necessary following a seismic event or a tornado. In a Safety Evaluation Report (SER) dated August 10, 1983, the staff accepted WPSC's commitment to install an automatic safety-related pump trip on low suction pressure for each AFW pump. In a letter dated May 7, 1993, the licensee revised this commitment to include the installation of low discharge pressure instrumentation in lieu of low suction pressure instrumentation. This change in commitment was accepted by the staff in a letter dated June 8, 1993. Installation of the low discharge pressure instrumentation has been completed.

3.0 EVALUATION

The licensee has proposed changes to the TS that would incorporate operability and surveillance requirements for the AFW pump low discharge pressure trip instrumentation.

The proposed changes would:

1. Revise TS 4.1-1 to provide surveillance testing requirements for AFW pump low discharge pressure trip channels.
2. Revise TS 3.4 to explicitly link operability of each AFW pump low discharge pressure trip channel to operability of the associated AFW pump.
3. Correct minor format inconsistencies in TS 3.4.b.1.A and 3.4.b.1.B.

TS 4.1-1

The proposed changes to TS Table 4.1-1 would add surveillance requirements for each of the three AFW low discharge pressure trip channels (one per AFW pump). Specifically, a channel functional test and a channel calibration of each trip channel will be completed each refueling cycle not to exceed 18 months. This surveillance testing is consistent with the requirements of the improved Westinghouse Standard Technical Specifications, NUREG-1431, with the exception of a channel check and channel functional test. The basis for these differences is provided below.

NUREG-1431 recommends that a channel check be performed every 12 hours. The licensee's design for this trip protection does not include gauges, meters or other instrumentation suitable for the performance of a channel check. Therefore, a channel check would not be practical for the design as installed.

The purpose of the AFW low discharge pressure trip instrumentation is to protect the AFW pumps from damage following a seismic event or a tornado. There are three separate and distinct low discharge pressure trip channels in the licensee's design, one associated with each AFW pump. There is no two-out-of-three or similar logic. Thus, failure of a given AFW pump low discharge pressure trip channel will have no effect on the remaining two AFW pumps or trip channels. The system design also includes low discharge pressure alarms and override switches in the control room to allow the operator to manually start or stop the AFW pumps, in the event of low discharge pressure trip channel malfunction. The quarterly in-service testing performed on the AFW pumps will provide information on the operability of the low pressure switch, time delay relay, and the control room alarm. Along with the quarterly in-service testing information, the operator will be able to determine the operability of the AFW pump low discharge pressure trip channels by verifying that the trip channels allow each pump to start and continue running under controlled conditions.

Based on the past reliability and repeatability of the components chosen for this protective instrumentation and circuitry, the licensee has proposed that the channel functional test frequency be once each refueling cycle not to exceed 18 months. The basis for this proposal is described below.

Both motor-driven AFW pump low discharge pressure trip channels consist of a United Electric Controls pressure switch and a single Agastat ETR trip relay. The turbine-driven AFW pump low discharge pressure trip channel consists of a United Electric Controls pressure switch and two Agastat ETR trip relays. Past performance of these pressure switches and relays has been excellent in other applications at the licensee's plant with service conditions that are more severe than the AFW pump installation. Surveillance frequencies for other AFW pump instrumentation is once each refueling cycle not to exceed 18 months.

TS 3.4

The proposed change in TS 3.4 defines the necessary operability requirements for the recently installed AFW pump low discharge pressure trip channels. The proposed change would limit the temperature of the reactor to less than 350 °F, based on the operability of both motor driven AFW pumps and the turbine driven AFW pump, and their associated low discharge pressure trip channels. The proposed change would also limit the amount of time an AFW pump low discharge pressure trip channel may be inoperable when the reactor is above 350 °F.

Administrative changes

Administrative changes are proposed to capitalize the word "operable" in TS 3.4.b.1.A and 3.4.b.1.B. This change is part of WPSC's general TS improvement plan which includes capitalizing the terms defined in TS 1.0 throughout the TS consistent with NUREG-1431. This change does alter the intent or interpretation of the TS.

SUMMARY

Based on the above evaluation, and since the proposed changes are consistent with the staff SER on the installation of AFW pump low pressure trip channels, dated August 10, 1983, and the staff's letter dated June 8, 1993, the staff finds that the proposed changes to the KNPP TS are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Wisconsin State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (59 FR 34671). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

6.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: November 1, 1994