U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-266; 50-301
License Nos:	DPR-24; DPR-27
Reports Nos:	50-266/96010(DRS); 50-301/96010(DRS)
Licensee:	Wisconsin Electric Power Company
Location:	6612 Nuclear Road Two Rivers, WI 54241
Dates:	August 16 and September 3-5, 1996
Inspector:	J. H. Neisler, Reactor Inspector
Approved by:	R. N. Gardner, Chief Engineering Specialists Branch 2 Division of Reactor Safety

III. Engineering

E1 Conduct of Engineering

E1.1 Electrical Separation

a. Inspection Scope (37551)

The inspector reviewed the licensee's plans for assuring redundant electrical conductors would not be impacted by a hot short in either conductor. The review included appropriate modification packages and modifications.

The inspector also performed a visual inspection of the conductors involved and observed portions of the completed modifications.

b. Observations and Findings

The licensee reported that during a plant design review, they determined that indication and alarm circuit cables from the Unit 1 steam driven auxiliary feedwater pump recirculating valve to the main control board ran in the same wireway as the control power circuits for the motor driven auxiliary feedwater pumps. The motor driven pumps are shared between both units. A potential fault in the steam driven pumps could affect control power to the motor driven pumps, disabling all three Unit 1 auxiliary feedwater pumps. The licensee declared all three pumps inoperable. After operability determinations and circuit modifications, the licensee returned the pumps to operability.

The inspector reviewed the modification packages and observed portions of the modification installation. To reduce the available short circuit current, the licensee replaced 30 ampere (AMP) breakers D-12-04 and D-12-16 with 15 AMP rated breakers. These breakers are in circuits 1AF-Y002 and 2AF-Y002, steam generator lo-lo level logic start signal to the auxiliary feedwater pumps. The 15 AMP breakers' rated interrupting capacity is 20,000 AMPs, maximum available short circuit current was 11,099 AMPs.

The licensee installed 15 AMP fuses in the control circuits for motor operated valves 1MS2019, 1MS2020, 1AF4000 and 1AF4001. These valves are the turbine driven auxiliary feedwater supply and discharge valves. The inspector's review of results of analyses performed using the CAPTOR circuit analysis program determined that the fuses in these circuits and the circuit breakers provide adequate protection to prevent the #14AWG conductors from reaching the conductor thermal damage temperature of 250°C.

The inspector reviewed the licensee's operability determination. The licensee's analysis determined that the lack of separation in the auxiliary feedwater pump control circuits in the control boards did not render the pumps inoperable. The operability determination indicated

that cable separation within the main control board is a design basis, but not a licensing basis, commitment. For operability determinations, demonstrating adequate protection of redundant safety circuits from the potential of being affected by a common mode failure was considered acceptable.

The Point Beach Final Safety Analysis Report (FSAR) Chapter 7 has no separation requirement for control board wiring. FSAR Section 8.2.2, states, "Wire and cables related to engineered safeguard and reactor protective systems are routed and installed to maintain integrity of their redundant channels and protect them from physical damage." Chapter 8 also discusses the verification of physical separation of emergency power cables. The wiring in question is not considered to be safeguards, reactor protection or emergency power cable.

On February 25, 1970, Westinghouse issued Engineering Change Notice ECN-WEP-70083, "Control Board Rerouting," to Bechtel Corporation. The engineering change notice required rerouting to assure separation of redundant trains of reactor protection, engineered safeguards, instrument busses and DC busses. Included in the design change were power and control cable to motor driven auxiliary feed pump P38A and P38B. The design change was not incorporated in the FSAR and apparently was not included in the plant licensing reviews. The licensee considered the separation of these motor control circuits to be a design issue, since the change notice was not included in the FSAR.

The licensee's corrective action included a review of all the control circuits in the control board to ascertain the extent of the separation problems starting with DC circuits in the main control boards. Detailed as-built walkdowns of the control board have been completed and wiring routing for safety related circuits has been documented. To date, 103 circuits have been identified as requiring some rerouting to establish separation according to the plant original design basis. The licensee has established a schedule for correcting the control board separation issues beginning with the Unit 1 October 1996 refueling outage.

c. Conclusion

The licensee's action to declare the auxiliary feedwater pumps inoperable and their corrective action to preclude the initiation of hot shorts in the auxiliary feedwater pumps control systems were prompt and effective. The inspector questioned the licensee's interpretation of design basis versus licensing basis in their operability determination. This issue is unresolved pending further NRC review (50-266/301/96010-01(DRS)).

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to licensee representatives at the conclusion of the inspection on September 5, 1996. The licensee acknowledged the findings presented.

The inspector asked the licensee whether any materials examined during the inspection were proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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T. Branam, Site Lead Electrical Engineer
P. Katers, Lead Electrical Engineer
B. Van der Velde, Licensing

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