



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

May 5, 1992

MEMORANDUM FOR: Edward L. Jordan, Chairman
Committee to Review Generic Requirements

FROM: Frank J. Miraglia, Deputy Director
Office of Nuclear Reactor Regulation

SUBJECT: RECENT REACTOR TRIP BREAKER FAILURE AT PALO VERDE

This memo is intended to provide you with additional information regarding the draft supplement 1 to Generic Letter (GL) 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," which was sent to you on January 29, 1992. Since NRR issued that memo, there has been an additional instance in which a reactor trip breaker (RTB) failed to open on demand.

On March 31, 1992, at Palo Verde Unit 3, the "C" RTB failed to fully open during a routine surveillance test. The breaker is a Westinghouse model DS-206; Palo Verde is the only site that uses this type of breaker for the reactor protection system. The shunt and undervoltage mechanism for the breaker appears to have functioned properly to initiate the breaker opening, but the breaker stuck in an intermediate position.

Region V sent a special inspection team to investigate the cause of this RTB failure. The inspection team determined that the failure to open was due to several deficiencies in the maintenance of the RTB. These deficiencies resulted in 1) insufficient compression of the stationary contact spring, 2) misalignment of the arcing contacts, 3) inadequate lubrication of the RTB moving contact linkage, and 4) improper assembly of the insulating link. With the exception of the lubrication problem, these conditions may have resulted from inadequate licensee attention to pole shaft replacement on this breaker. All these conditions contributed to the actual RTB failure. This type of problem is described in Westinghouse Technical Bulletin NSD-TB-91-06-R0, dated September 24, 1991. The technical bulletin warned that if its recommended actions were not performed, the potential existed for the breaker not to open. However, the technical bulletin only recommended that those actions be performed if difficulties were experienced with electrical opening of a breaker. The licensee had not experienced such difficulties and therefore, did not perform the recommended actions prior to the event.

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The cycle counter of the failed RTB indicated that the breaker had been cycled about 900 times. Because of this relative low number of breaker cycles and in light of the identified causes of the breaker failure described above, the RTB failure at Palo Verde was not age/cycle related, but resulted from maintenance related activities, including inadequate licensee attention to pole shaft replacement. Since the RTB failure at Palo Verde is not age/cycle related, this failure has no bearing on the RTB life testing described in the original GL 83-28. Therefore, we believe that our previous assessment that there is no need to conduct any further life testing is still valid.

Original signed by
Frank J. Miraglia

Frank J. Miraglia, Deputy Director
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