SAFETY EVALUATION

GENERIC IMPLICATIONS OF SALEM ATWS EVENT

GENERIC LETTER 83-28, ITEM 4.1

RANCHO SECO NUCLEAR STATION

DOCKET NO. 50-312

I. INTRODUCTION

On February 25, 1983, during startup of the Salem Unit 1 plant, both circuit breakers in the Reactor Trip System failed to open automatically upon receipt of a valid trip signal. As a result of that event, the NRC's Office of Inspection and Enforcement issued IE Bulletin 83-01 which described the event and requested specified prompt corrective and preventive actions by licensees. As the cause and ramifications of the event were more clearly developed, the NRC's Office of Nuclear Reactor Regulation issued on July 8, 1983, Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events." This letter addressed issues related to reactor trip system reliability and general management capability. The letter was sent to all licensees of operating reactors, applicants for operating licenses and holders of construction permits.

One of the areas of reactor trip system reliability considered in Generic Letter 83-28 (GL 83-28), is that of vendor-recommended modifications. This is identified in GL 83-28 as Item 4.1. This evaluation considers the acceptability of the response to this item provided by the Sacramento Municipal Utility District (the licensee) for the Rancho Seco Nuclear Station (the facility).

II. EVALUATION

Item 4.1 of GL 83-28 states that "All vendor-recommended reactor trip modifications shall be reviewed to verify that either: (1) each modification has, in fact, been implemented; or (2) a written evaluation of the technical reasons for not implementing a modification exists". This item of GL 83-28 also states that licensees should submit a statement confirming that this action has been implemented.

By letter dated November 4, 1983, the licensee responded to a number of GL 83-28 items, including Item 4.1. In responding to Item 4.1, the licensee cited a report by the Babcock and Wilcox Owners' Group (BWOG) which stated there had been no vendor-recommended field modifications for the Reactor Trip Breakers (General Electric Model AK2A) in use at B&W designed facilities. Supplementary information identifying certain problem areas was later provided by BWOG letters dated July 16, 1984 and April 8, 1985; and by licensee letters dated September 5, 1984 and May 3, 1985, which endorsed the positions stated in the respective BWOG letters.

This supplementary information indicated that subsequent to the November 4, 1983 submittal, the BWOG had learned that during the period

from November 1976 through March 1977 certain reactor trip breakers had been manufactured with a defect. The BWOG also stated, however, that they had verified that all affected breakers had been corrected either in the field or by B&W. In addition, B&W had implemented at that time, steps in its receiving inspection procedure to identify this defect if additional items were to occur. In addition, the BWOG stated that it learned in February 1984 that the use of certain lubricants combined with certain lubrication rejuvenating practices could accelerate the aging (hardening) of the lubricant used for the trip shaft bearings.

As a result of this latter finding, the BWOG recommended restriction of the rejuvenation process to those instances where it was essential, and undertook a study of available alternatives - including modification and replacement of the breakers. This study indicated modification of the existing circuit breakers was the preferred option. The BWOG also determined that in addition to improved maintenance, the following modifications should be incorporated: (1) replacement of trip shaft bearings with Mobil 28 lubricated bearings and (2) installation of D.C. shunt trip attachments (where not already installed). Inasmuch as the shunt trip attachments were already installed in the breakers at Rancho Seco, this modification was not needed. As for replacement of the trip shaft bearings with Mobil 28 lubricated bearings, the licensee's May 5, 1985 letter states that the breakers are being refurbished by G.E., that this process includes the recommended bearing replacement, and that this will be completed prior to startup from the current refueling outage. It therefore appears the modifications recommended not only by the vendor, but also by the BWOG are being implemented by the licensee.

The staff notes that on June 6, 1985, while testing the undervoltage (UV) trip feature of one of the refurbished reactor trip breakers, a failure to trip was observed. Preliminary evaluation indicates the failure was caused by a mis-positioned trip paddle. Regarding Item 4.1, we conclude this event does not affect our finding, because this item applies to implementation of modifications recommended by the vendor at the time of issuance of GL 83-28. Since the June 6 failure represents a new problem that will require attention from the licensee and/or vendor, this matter will be addressed by GL 83-28 Item 4.2, Reactor Trip System Reliability (Preventive Maintenance and Surveillance Program for Reactor Trip Breakers); and/or by Item 2.1, Equipment Classification and Vendor Interface (Reactor Trip System Components).

III. CONCLUSION

Based on the licensee's confirmation that the facility has implemented all vendor-recommended modifications existing at the time of issuance of the generic letter, we conclude the licensee has satisfactorily completed the actions set forth in Item 4.1 of Generic Letter 83-28, and this item is closed.

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