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SUBJECT: Forwards addl info re Generic Ltr 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events," per 870723 request. Response discusses reasons for deletion of "after" trip shaft torque values from maint procedure.

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 TITLE: OR/Licensing Submittal: Salem ATWS Events GL-83-28

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November 25, 1987

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362  
San Onofre Nuclear Generating Station  
Units 2 and 3

By letter dated July 23, 1987 the NRC requested additional information to facilitate NRC review of Southern California Edison Company's response to USNRC Generic Letter 83-28, Required Actions Based On Generic Implications of Salem ATWS Events. The purpose of this letter is to transmit the requested information to the NRC which is provided as an enclosure to this letter.

If you have any additional questions, please contact me.

Very truly yours,

Enclosure

cc: H. Rood, NRR Senior Project Manager, San Onofre  
J. B. Martin, Regional Administrator, NRC Region V  
F. R. Huey, NRC Senior Resident Inspector, San Onofre

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SOUTHERN CALIFORNIA EDISON COMPANY  
REQUEST FOR ADDITIONAL INFORMATION  
ITEM 4.2 (PARTS 1 and 2) OF GENERIC LETTER 83-28  
SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 and 3

Request

In a request for information dated December 23, 1985, the NRC staff identified 13 items for maintenance at six month intervals that should be included in the licensee's reactor trip breaker (RTB) maintenance program. By letter dated March 25, 1986, the licensee confirmed that each of the 13 items was included in their periodic maintenance program except for the following:

7. Verification that the trip torque required on the trip shaft is less than 1.5 pound-inches, as specified in Service Advice 175-9.3S, Item #S4; "Before" and "After" maintenance torque values should be recorded;
10. Lubrication of trip shaft and latch roller bearings with Mobil 28 lubricant.

The licensee states that trip torque verification is not performed "After" maintenance on the basis that SCE believes response time testing is superior to trip torque measurements as a predictive parameter in providing information on breaker degradation. No scientific or statistical analysis is presented to support the licensee's belief. The licensee should commit to the trip torque verification measurement after maintenance, or present evidence that such a measurement is of no value in assessing the operability of the breaker thereafter.

Response

The SCE maintenance procedure for reactor trip breakers (RTBs) initially included both the "before" and "after" verification and recording of trip shaft torque values. These values were then extracted from the procedure and included in a formal RTB trending program. In November 1985, the verification and recording of "after" trip shaft torque values were deleted from the maintenance procedure and trending program based on: 1) the recent replacement of trip shaft and latch roller bearings, 2) trend statistics, 3) component wearout, and 4) redundant testing. The following paragraphs provide discussion of the evidence which SCE considers supporting our position that the "after" maintenance trip torque verification is not valuable in assessing breaker operability.

Replacement of the trip shaft and latch roller bearings with the new Mobil 28 lubricated bearings was the result of extensive testing which identified the breakdown of the bearing lubricant as the root cause of unacceptable RTB response time and trip shaft torque values. After an RTB had its bearings replaced, the response time and trip torque returned to the normal values

specified by the vendor, and the operation of the breaker significantly improved. While response time testing was continued on a monthly basis, trip torque testing was extended to every two months. This extension was justified in that previous trending statistics indicated that response time testing is a more sensitive and earlier predictive parameter in providing information on breaker degradation and thus envelops trip torque testing.

Item 4.5.3 of Generic Letter 83-28 states that considerations of reduced redundancy during testing and component "wearout" caused by the testing should be considered when striving to achieve high reactor trip system availability. In order to reduce the number of times a RTB is opened and closed during maintenance by 25%, and thus complying with the aforementioned philosophy, a decision was made to delete "after" maintenance trip torque verification from the maintenance procedure since response time testing is considered the primary predictive parameter as discussed above. Furthermore, in support of this decision, trending statistics obtained from the trending program showed that "after" maintenance trip torque values were typically lower or the same as "before" maintenance trip torque values. In either case, the trip torque values were less than the maximum specified by the vendor and less than the more restrictive maximum imposed by SCE. Thus, "after" maintenance trip torque value verification and trending is not performed and is not considered necessary for reliable RTB operation.

#### Request

In the request for information dated December 13, 1985; the NRC staff also identified four parameters for trending. The licensee committed to trending of the breaker response time for the undervoltage trip, but declined to include (1) undervoltage trip attachment dropout voltage, (2) breaker insulation resistance or, as discussed above, (3) trip torque. The licensee stated that the dropout voltage and resistance measurements were recorded, but not trended, on the basis that the licensee did not believe that predictive information could be derived from a trend analysis for these parameters. The licensee should provide scientific or statistical evidence to support their belief. As an alternative, the NRC staff could find acceptable a program wherein the licensee not only recorded the three parameters, but compared them to the manufacturer's recommended values or ranges, and took appropriate action accordingly.

#### Response

Undervoltage Trip Attachment (UVTA) dropout voltage and breaker insulation resistance measurements are not included in the trending program because they are parameters that do not provide predictive information in the assessment of the overall condition or degradation of a RTB. However, these parameters are included in the maintenance procedure where they are measured, recorded, and verified to be within vendor specified tolerances. Any measurement value found to be not within the specified tolerance would be evaluated and corrected before the breaker is returned to service.

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