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SUBJECT: Discusses Tech Spec 3/4.1.3.4 re CEA drop time testing.Drop times will be measured on 880717 during refueling outage.

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June 3, 1988

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

Gentlemen:

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

Technical Specification 3/4.1.3.4 "CEA Drop Time," requires measurement of control element assembly drop times prior to startup following each refueling. CEA drop times will be measured at SONGS 3 on approximately July 17, 1988, during the current refueling outage. Based on recent experience at other similar units using a new CEA drop time measurement method, SCE has determined that the potential exists for SONGS 3 to fail to satisfy the existing requirements. As drop time testing is a critical path activity conducted just prior to entry into MODE 2, failure of the test will result in an immediate delay in return of the unit to service until relief from the existing drop requirement can be obtained. Consequently, a license amendment or waiver may be required as early as July 17, 1988 if the existing requirements are not satisfied. SCE will be requesting a license amendment as soon as the supporting safety analyses are completed by our contractor, Combustion Engineering. Completion of the analyses is expected by June 13, 1988.

Prior to SONGS Unit 2 Cycle 4 startup, CEA drop times were measured individually using a visicorder to simultaneously monitor the position of a particular CEA and interruption of power to the upper gripper coil. The CEA is withdrawn from the core to its full out position and dropped by opening its individual circuit breaker. Interruption of power to the gripper coil and CEA position as a function of time are recorded on the visicorder chart. The CEA drop time is determined from this chart.

Beginning with Unit 2 Cycle 4 startup a new method of measuring CEA drop times was used. This method uses special software (CEA Drop Time Test, or CDTT software) loaded on one of the Control Element Assembly Calculators (CEACs) which will initiate a Core Protection Calculator (CPC) trip and simultaneously monitor the positions of all 91 CEAs as a function of time. The data obtained

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can then be analyzed to determine individual CEA drop times. The CDTT software initiates the test by transmitting a large penalty factor to each of the CPC channels, producing a reactor trip. It is important to note that in this method, the reactor trip breakers are the point at which power is interrupted to the CEA gripper coils, rather than the individual breakers as in the "traditional" method.

The CEA drop times measured using this method during Unit 2 startup were unexpectedly longer than using the traditional method. Although no CEAs failed to meet the 3.0 second drop time requirement, some CEAs were uncomfortably close to the limit. Drop times for the five slowest CEAs were remeasured using the traditional method which confirmed that there was no degradation in CEA performance compared with previous tests and that the differences experienced were thought to be test related. Subsequently, the new test method was used recently at ANO-2, where a number of CEAs failed the drop time test. Investigation at ANO-2 revealed that the measured drop times differ between the two methods because the circuit dissipating gripper coil stored energy has a longer time constant when tripped by the reactor trip breakers than when tripped by the individual circuit breakers. Consequently, the longer drop times are not an anomaly of the test method. Since the new method uses the reactor trip breakers, it more accurately reflects the operation of the reactor protection system as assumed in the safety analysis. Thus, the traditional method may not provide conservative results relative to the safety analysis assumptions.

The new test method will be used for CEA drop time measurements during SONGS Unit 3 Cycle 4 startup. Following the determination at ANO-2 that the longer drop times were not a test anomaly, SCE reviewed past Unit 3 CEA drop time measurements and determined that there is potential for one CEA, CEA 64, to fail to meet the 3.0 second requirement using the CDTT software. Although never failing using the traditional method in past tests, this particular CEA has been chronically slow, regardless of the fuel assembly in which it has been installed. Accordingly, to minimize the potential for failure using the CDTT software, another CEA is being substituted for CEA 64 in the current refueling outage.

In parallel, Combustion Engineering was contracted to provide the necessary safety analyses to support a license amendment request. Because Combustion Engineering is currently providing support to other utilities in a similar situation with more impending needs, the SONGS specific analyses will not be completed until approximately June 13, 1988. SCE's license amendment request to increase the CEA drop time requirement from 3.0 to 3.2 seconds will be submitted immediately thereafter. The supporting justification will be analogous to that provided by Arkansas Power and Light for the recently approved ANO-2 amendment request.

SCE believes that the circumstances described above could not have been anticipated prior to the ANO-2 determination that the longer drop times are not a test anomaly. Since that time SCE has acted prudently to address the situation. Accordingly SCE considers that exigent NRC action is warranted to avoid potential delay of SONGS 3 return to service.

Should you have any questions regarding the information provided by this letter, please call me.

Very truly yours,

A handwritten signature in cursive script, appearing to read "M. D. Medford".

cc: J. B. Martin, Regional Administrator, NRC Region V  
F. R. Huey, NRC Senior Resident Inspector, San Onofre Units 1, 2 and 3