

Response  
to  
Deviation



Southern California Edison Company

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February 11, 1994

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R. W. KRIEGER  
VICE PRESIDENT  
NUCLEAR GENERATION

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

Dear Sir:

Subject: Reply to a Notice of Deviation  
San Onofre Nuclear Generating Station, Units 2 and 3

Reference: Letter, S. Richards (NRC) to Mr. Harold B. Ray,  
dated January 6, 1994

The referenced letter forwarded the results of a routine NRC inspection, No. 93-36 conducted by Mr. C. Myers from December 6 through 10, 1993, which included a Notice of Deviation. This letter provides the Southern California Edison reply to the Notice of Deviation. As discussed with Mr. S. Richards on January 12, 1994, the due date for the reply was extended to February 10, 1994, because the Notice was not received by Edison from the Commission until January 11, 1994.

Limitorque Contact

In January 1992, Edison's Nuclear Engineering and Design Organization (NEDO) met with NRC inspectors, who were conducting an MOV GL 89-10 Team inspection (NRC Inspection IR 92-02), regarding the performance of DC MOVs at degraded voltage of less than 75%. The concern was to ensure that under degraded voltage conditions, the actuators would still perform their safety-related function.

Edison's minutes from the January 31, 1992 NRC Exit Interview captured the item as "The NRC understands that SCE will attempt to obtain documentation from Limitorque supporting the operability assessment at degraded voltages." The NRC inspection report 92-02 discussion of this item states (in full):

"At the time of the inspection, the licensee stated that they would contact Limitorque for the purpose of obtaining specific vendor concurrence for the low voltage application. As an alternative, the licensee was also considering additional testing and analytical measures to demonstrate

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MOV capability to perform under design basis conditions with degraded voltage."

An Edison supervisor contacted Limatorque in April 1992 to discuss Limatorque's position on the application of at least 75% rated voltage to ensure motor performance along with Edison's interpretation of motor terminal voltage application. The supervisor was unsuccessful in obtaining a response or concurrence from Limatorque on the issue; therefore, Edison decided to pursue alternative solutions. Limatorque's position was not unexpected, since we had made a similar request in the past without success. new

NEDO completed calculation No. E4C-017 Rev. 11, to address the issue, on July 14, 1992. The commitment was closed in Edison's tracking system based on successful completion of the alternative calculation option which was described in IR 92-02.

#### Stall Torque

The Notice of Deviation contained a reference to another issue, regarding Edison's use of stall torque. Specifically, the Notice of Deviation states in part:

"In addition, the licensee committed to use the motor rated starting torque in their calculations to assure adequate MOV capability under design basis conditions.

"Contrary to the above, as of December 10, 1993, licensee calculations performed in accordance with design standard MS-123-125 to determine MOV capability under degraded voltage conditions, utilized generic actuator motor stall torque rather than rated starting torque."

Edison can find no record of a commitment to use the motor-rated starting torque. As documented in IR 92-02, Edison committed not to use motor stall torque and has met that commitment.

SCE's Design Standard MS-123-125 Rev 1, dated 5/24/93, Appendix III, Part II delineates the methodology on how DC MOV maximum and minimum torque values are calculated. This methodology does not use either stall or rated starting torque in determining available torque at degraded voltage conditions. The rated locked rotor current is used to determine the equivalent resistance of the motor. This equivalent resistance is then used, with the other motor circuit resistance parameters, in the electrical calculation circuit model at the specific voltages of interest to calculate the available motor current. Once the available motor current is calculated, the available motor torque is determined from the Limatorque motor curve. This available motor torque is then used in the MOV setpoint calculation. 11/11/94



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Summary

Edison believes we did not deviate from the commitment relating to DC motor capability at degraded voltage conditions as documented in IR 92 02. Edison did contact Limitorque to discuss Edison's interpretation of motor performance at any given value of applied voltage. Further, Edison does not use stall torque for calculating DC motor available torque at degraded voltage conditions.

However, Edison is interested in resolving the NRC's concern with respect to the use of generic actuator motor performance curves. In order to provide a final resolution of this issue, prior to the completion of the Cycle 8 refueling outage, Edison will:

- 1) Reanalyze DC MOVs using the Limitorque methodology, and/or,
- 2) Obtain motor specific performance data which will then be used as the basis for our GL 89-10 design basis calculations.

If you have any questions, please call me.

Sincerely,

cc: K. E. Perkins, Acting Regional Administrator, NRC Region V  
NRC Senior Resident Inspector's Office, San Onofre Units 1, 2 & 3  
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3