

Southern California Edison Company



P. O. BOX 800  
2244 WALNUT GROVE AVENUE  
ROSEMEAD, CALIFORNIA 91770

March 15, 1982

TELEPHONE  
(213) 572-1401

K. P. BASKIN  
MANAGER OF NUCLEAR ENGINEERING,  
SAFETY, AND LICENSING

Director, Office of Nuclear Reactor Regulation  
Attention: D. M. Crutchfield, Chief  
Operating Reactors Branch No. 5  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Gentlemen:

Subject: Docket 50-206  
Masonry Wall Evaluations  
SEP Topic III-6  
Seismic Design Considerations  
San Onofre Nuclear Generating Station  
Unit 1

By letters dated January 11 and 15, 1982, we provided three reports describing the seismic reevaluation of masonry walls at San Onofre Unit 1. On January 20, 1982 we met with the NRC staff to further describe the methods used for these evaluations.

In a letter dated February 17, 1982, the NRC staff stated that the non-linear inelastic time history analysis methodology could not be accepted as the sole basis for evaluation and qualification of the masonry walls. That letter further identified two options for timely completion of the masonry wall evaluations: (a) a limited scope test program, or (b) elastic evaluation and modification as necessary of the masonry walls. The letter further indicated that the second option is considered by the staff to be the more desirable and preferred from the standpoint of practicality and cost-effectiveness.

We have reviewed the NRC's February 17 letter and the basis for the conclusions therein. We disagree with the conclusions in that letter and we maintain that the inelastic analyses we have performed demonstrate the capacity of the masonry walls to withstand a 0.67g Housner ground motion. It was our view at the time of the January 20 meeting, and still is, that we could respond to the NRC comments and demonstrate the adequacy of our approach. Therefore, we consider it appropriate for us to respond to the specific comments raised at the January 20 meeting and reiterated in the February 17 letter.

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As noted above, the NRC's February 17 letter identified two proposed options. We have examined those options along with other options for completion of the masonry wall evaluations. We conclude that further testing of masonry walls to validate the inelastic methodology (option a) is not necessary and we would intend to respond to this issue further in our response to the specific NRC comments. Furthermore, we conclude that performance of an elastic linear analysis of the walls and implementation of modifications (option b) is neither practical nor cost-effective. Implementation of structural modifications required to force some of the masonry walls into the elastic range could be sufficient to require large scale reanalysis of some structures. This would impact the overall completion schedule for the seismic reevaluation of the San Onofre Unit 1 structures.

In view of the above, in order to respond to the NRC staff's stated concern that our non-linear time history analysis cannot be accepted as the sole basis for evaluation and qualification of the masonry walls, we propose to perform an alternate analysis utilizing the inelastic spectrum method as described in NUREG/CR-0098, "Development of Criteria for Seismic Review of Selected Nuclear Power Plants" and in Section 3.8.4.5.2 of our "Balance of Plant Structures Seismic Reevaluation Criteria" which was submitted to the NRC by letter dated February 23, 1981. This method relies solely on the elastic properties of the elements of the masonry walls, as defined by ASTM and ACI standards, to compute the member ductility associated with each wall segment. This additional analysis will, therefore, provide a separate and independent basis for evaluation of the masonry walls.

In summary, we do not agree with the NRC conclusion that the analyses submitted to-date are inadequate for qualification of the masonry walls at San Onofre Unit 1 nor do we propose to pursue either of the options suggested by the NRC staff in their February 17, 1981 letter. Rather, we propose to respond to the technical comments raised by the NRC staff and to perform an alternate analysis of the masonry walls in accordance with the inelastic spectrum method. We anticipate being able to submit this information to the NRC staff by about April 30, 1982. We believe that these actions will permit an expeditious completion of the review of the masonry walls at San Onofre Unit 1.

If you wish to further discuss this matter, please let us know.

Very truly yours,

