

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In The Matter Of:)
PACIFIC GAS AND ELECTRIC COMPANY)
(Diablo Canyon Nuclear Power) Docket Nos. 50-275(OL)
Plant Units 1 and 2) 50-323(OL)

AFFIDAVIT OF JAMES P. KNIGHT

I, James P. Knight being duly sworn, do depose and state: I am employed by the U. S. Nuclear Regulatory Commission as the Assistant Director for Components and Structures Engineering, Division of Engineering, Office of Nuclear Reactor Regulation. A copy of my professional qualification is bound into the transcript of the Atomic Safety and Licensing Appeal Board Hearing following TR

The purpose of this affidavit is to discuss the engineering significance of USGS Open File Report 81-365 in the context of the seismic design basis established for the Diablo Canyon Nuclear Power Plant. Discussion of the seismological aspects of this report are contained in the affidavit of Dr. R. Rothman.

USGS Open File Report 81-365 represents a study of peak horizontal acceleration and velocity from strong-motion records including records from the 1979 Imperial Valley, California, earthquake. Intervenor in his letter of April 13, 1981 transmitting USGS 81-365 to the ASLAB would seem to imply that the

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peak instrumental acceleration values contained in USGS Circular 672 were somehow pivotal in determining the adequacy of the seismic design at Diablo Canyon. This is not the case. The random peak accelerations that occur during seismic events have little if any significance from the standpoint of damage (ASLB 8634). For engineering design purposes peak acceleration in and of itself was not the significant factor in establishing the total seismic design at Diablo Canyon.

From the standpoint of engineering design for nuclear power plants it is the prediction of the total energy that will be efficiently input (i.e. at frequencies of response) to the structures, systems and components from a seismic event that will determine the strength necessary to assure safety. The elastic response spectrum as typically employed for nuclear power plant design and used at Diablo Canyon is an accepted measure of this energy.

The record of this proceeding contains extensive expert testimony that provides the basis for the development of the design response spectra employed in the assessment of seismic adequacy at Diablo Canyon. This testimony clearly demonstrates that the peak instrumental acceleration values contained in USGS Circular 672 were not based on data for a magnitude 7.5 earthquake and neither were nor should have been explicitly used in the development of the Diablo Canyon design response spectra (TR 8538-8635, also Newmark direct testimony). Accordingly, the discussion of peak acceleration values contained in USGS 81-365 does not add materially to the information already before the board concerning the response spectrum utilized for design at Diablo Canyon.



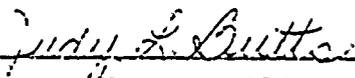
The expert testimony on the record in the proceeding also demonstrates that the design spectra employed at Diablo Canyon is a very conservative representation of a magnitude 7.5 earthquake for design purposes (TR 8615).

For the reasons above I do not believe that USGS 81-365 contains information that would significantly modify the staff's analysis contained in the Diablo Canyon proceedings before the Licensing Board and the Appeal Board.



J. P. Knight

Subscribed and sworn to before
me this 27th day of April, 1981



Notary Public

My commission expires: July 1, 1982



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50-323 O.L.

CERTIFICATE OF SERVICE

I hereby certify that copies of NRC STAFF RESPONSE TO BOARD'S REQUEST FOR COMMENTS RE: USGS OPEN FILE REPORT 81-365 in the above captioned proceeding have been served on the following by deposit in the United States mail, first class or, as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 27th day of April 27, 1981.

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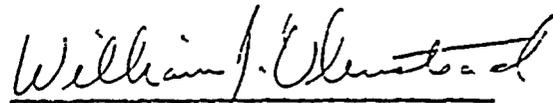


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