May 7, 1976

DISTRIBUTION
Ketchen
Davis
Tourtellotte
Shapar
Engelhardt
Grossman
NRC Files
Reg Central
Formal File (2)

Mrs. Sandra A. Silver
5055 Radford Avenue
North Hollywood, California 91607

In the Matter of
Pacific Gas and Electric Company
(Diablo Canyon Nuclear Power Plant, Units Nos. 1 and 2)
Docket Nos. 50-275 O.L. and 50-323 O.L.

Dear Mrs. Silver:

On April 20, 1976, a meeting was held between the United States Nuclear Regulatory Commission Staff and Pacific Gas and Electric Company about the seismic situation at the Diablo Canyon Plant. That meeting was announced to the parties by enclosure 1.

Enclosed for your information is the Nuclear Regulatory Commission's Structural Engineering Branch Position on the seismic design of Diablo Canyon which was distributed to the Applicant by the Staff at the April 20 meeting. You will note that this document sets forth the Staff position on reanalysis of the Diablo Plant for a 7.5 magnitude earthquake with horizontal spectra normalized to .75g.

Sincerely,

James R. Tourtellotte
Assistant Chief Hearing Counsel

Enclosures

cc: (w/encl.)
Elizabeth S. Bowers, Esq.
Mr. Glenn O. Bright
Dr. William E. Martin
Philip A. Crane, Jr., Esq.
Elizabeth Apfelberg
Andrew J. Skaff, Esq.
Raye Fleming
Mr. Frederick Eissler
Mr. Gordon Silver
William P. Cornwell
Paul C. Valentine
Yale I. Jones, Esq.
Atomic Safety and Licensing Appeal Board
Atomic Safety and Licensing Board
Docketing and Service Section

OFFICE	OELD	OELD				
SURNAME	LDDavis/dkw	JTourtellotte				
DATE	5/7/76	5/7/76				

NUCLEAR REGULATORY COMMISSION

STRUCTURAL ENGINEERING BRANCH

BRANCH POSITION ON THE SEISMIC DESIGN OF DIABLO CANYON

1. The applicant will be asked to specify a magnitude 7.5 earthquake at the HOSGRI fault with horizontal spectra normalized to 0.75g Regulatory Guide 1.60 spectral shapes may be used. Use of the HOSGRI spectral shape will require further justification since it is believed that the HOSGRI spectral shape was developed for lower magnitude earthquakes.

2. A reduction in both horizontal and vertical response spectra will be permitted depending on the actual equivalent length of individual buildings. This reduction recognizes that ground motions are not synchronized under structures during earthquakes. In other words, different points in the foundation base slab will not experience the maximum free field ground motion at the same time. The equivalent length of each individual structure will be equal to the square root of the building base slab area. The magnitude of the reduction factor shall be determined as the average of the value from the theoretical procedure given by Scanlan (see Reference) for a harmonic wave and the value determined using the Pacoima Dam record obtained in the 1971 San Fernando earthquake. The harmonic wave in the Scanlan procedure will be assumed to have a frequency of 7 hertz.

3. Where such reduction in response spectra is used, the applicant will be asked to appropriately account for additional tilting and torsion which may result from the nonsynchronized earthquake motions considered in item 2, above.

4. In reevaluating the capability of the plant structure, systems and components, inelastic behavior may be relied upon to absorb the ground motion energy. Where such a behavior is relied upon, a ductility ratio not exceeding 1.2 may be used in determining seismic loads and motions. For each particular structure where this ductility is relied upon, the applicant will be asked to provide justification and bases for assuring that the increased strains and deformations will not affect the safety functions of the plant systems and structures. This ductility ratio is permitted by the SEB staff for near-field earthquakes, such as those associated with the HOSGRI fault, which tend to have shorter durations of strong motion. It is recognized that for short duration earthquakes, the use of elastic response spectra tends to produce overly conservative results.

5. It was also decided that the analytical work required to develop individual response spectra for the various plant buildings will be performed by the applicant and a report will be requested thereafter. The SEB staff and Dr. Newmark will review this report and only thereafter will finalize the SER for release.

/s/ Sihweil

Isa S. Sihweil, Chief
Structural Engineering Branch
Division of Systems Safety

Docket Nos. 50-275
and 50-323

Olan D. Parr, Chief, Light Water Reactors Branch No. 3, DPM

FORTHCOMING MEETING WITH PACIFIC GAS AND ELECTRIC COMPANY (PG&E) -
DIABLO CANYON NUCLEAR POWER STATION, UNITS 1 & 2 (OL)

DATE & TIME: April 20, 1976 - 9:00 a.m.

LOCATION: Bethesda, Maryland
(Room to be determined)

PURPOSE: To discuss seismic design of
Diablo Canyon

PARTICIPANTS: PG&E
(D. Lindblad, R. Bettinger, V. Gilo)

John Blume Associates
(J. Blume, R. Callaghan)

NRC - STAFF
(R. C. DeYoung, O. Parr, D. Allison,
R. Maccary, I. Sihweil, [illegible]
J. Tourtellotte, L. Shao-Lewis,
W. Cargill, J. C. Stepp, D. Hofman,
et al)

Dennis F. Allison
Light Water Reactors
Branch No. 3
Division of Project Management

cc: Service list

DPM:LWR #3
DAllison:mt
4/ /76