

FEB 16 1978

MEMORANDUM FOR: John F. Stolz, Chief, Light Water Reactors Branch No. 1, DPM
FROM: D. Allison, Project Manager, Light Water Reactors Branch
No. 1, DPM
SUBJECT: DIABLO CANYON SEISMIC DESIGN ACRS CONSULTANT REPORTS

The attached reports have been received from ACRS consultants concerning Diablo Canyon seismic design basis.

Original Signed By
Dennis P. Allison

D. Allison, Project Manager
Light Water Reactors Branch No. 1
Division of Project Management

Enclosures:
As stated

cc: See next page

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cc: Philip A. Crane, Jr., Esq.
Pacific Gas & Electric Company
77 Beale Street
San Francisco, California 94106

Janice E. Kerr, Esq.
California Public Utilities Commission
350 McAllister Street
San Francisco, California 94102

Mr. Frederick Eissler, President
Scenic Shoreline Preservation
Conference, Inc.
4623 More Mesa Drive
Santa Barbara, California 93105

Ms. Elizabeth E. Apfelberg
1415 Cazadero
San Luis Obispo, California 93401

Ms. Sandra A. Silver
425 Luneta Drive
San Luis Obispo, California 93401

Mr. Gordon A. Silver
425 Luneta Drive
San Luis Obispo, California 93401

Paul C. Valentine, Esq.
321 Lytton Avenue
Palo Alto, California 94302

Yale I. Jones, Esq.
19th Floor
100 Van Ness Avenue
San Francisco, California 94102



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cc Continued:

Ms. Raye Fleming
1746 Chorro Street
San Luis Obispo, California 93401

Brent Rushforth, Esq.
Center for Law in the Public Interest
10203 Santa Monica Boulevard
Los Angeles, California 90067

Arthur C. Gehr, Esq.
Snell & Wilmer
3100 Valley Center
Phoenix, Arizona 85073

Mr. James O. Schuyler, Project
Engineer
Pacific Gas & Electric Company
77 Beale Street
San Francisco, California 94106

Bruce Norton, Esq.
3216 North 3rd Street
Suite 202
Phoenix, Arizona 85012

Mr. W. C. Gangloff
Westinghouse Electric Corporation
P. O. Box 355
Pittsburgh, Pennsylvania 15230

Michael R. Klein, Esq.
Wilmer, Cutler & Pickering
1666 K Street, N. W.
Washington, D. C. 20006

David F. Fleischaker, Esq.
1025 15th Street, N. W.
5th Floor
Washington, D. C. 20005



FEB 16 1977

SHAILER S. PHILBRICK

CONSULTING ENGINEERING GEOLOGIST
ITHACA, N. Y. 14850

LT-0898

227 257-1957

117 TEXAS LANE

8 November 1977

Dr. C.P. Siess
805 Hamilton Drive
Champaign, Illinois 61820

Dear Dr. Siess:

In reply to your letter of November 3, 1977, subj. Diablo Canyon Seismic Design Bases, addressed to the Diablo Canyon Seismic Consultants, this letter states my position in this matter.

I have not been involved in this except for the meeting of May 1976 near the site when we heard the data on the capability of the Hosgri fault and came to a conclusion as to the magnitude of an event on that fault which might affect the site and from that came to an acceleration, as I remember it, of .75 g. I am not aware of how these values shown in table 1 were derived. Neither am I aware of what are the crucial modifications which must be made nor how they are to be made, to the plant prior to operation.

Therefore I do not consider I am competent to respond to your request on an engineering basis. I would suspect that a limited operating license for the interim period would be reasonable on the basis that the 1927 event was never, to my satisfaction, tied to the Hosgri fault, nor do we have definite information which establishes the time or date when last motion occurred on the Hosgri fault. My feeling is that the Hosgri fault has been quiet for a fairly long period of time probably measured in hundreds of years. If this is the case than the interim period represents a small percentage what might be considered the return period of an event which has not been absolutely tied to the Hosgri fault.

I would be absolutely firm in the position that no license should be issued unless the plant can be shut down safely in the case of the occurrence of the postulated event on the Hosgri fault.

Sincerely yours,

Shailer S. Philbrick



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2200 Bonisteel Boulevard
A Arbor, Michigan
November 9, 1977

FEB 16 1978

RECEIVED
ADVISORY COMMITTEE ON
NUCLEAR SAFETY
CT-0900

Mr. John C. McKinley - ACRS
Nuclear Regulatory Commission
Washington, DC 20555

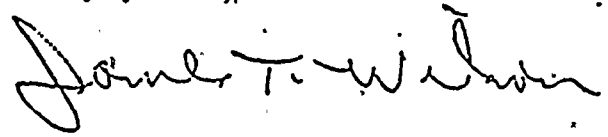
NOV 14 1977

Dear Mr. McKinley:

In response to Mr. Siess' letter of November 3, 1977, regarding the Diablo Canyon site, I consider the position of the NRC staff acceptable. I do not feel there is any over-conservatism in their values and as a consequence, the applicant should be required to meet fully the values proposed and should demonstrate that all critical components and structures do so.

My conclusions are based on the nature of the Hosgri and associated faults and a consideration of the nature of historic damage to structures along such faults in coastal California, as well as on considerations from instrumental recordings and extrapolations from earthquake source theories.

Very truly yours,



JTW/md
cc: C. P. Siess



CT-0904

November 21, 1977

To: ACRS

Subject: Diablo Canyon Seismic Design Bases

This is a response to Dr. Siess's request of November 3 for an opinion on whether "the NRC staff requirements are adequate to provide reasonable assurance that there will be no undue hazard to the health and safety of the public."

My opinion is that the staff requirements are adequate, but I wish to qualify the basis for this opinion. I am far better informed on the geologic data and seismic probabilities than on the translation of these into the design spectra which accompanied Dr. Siess's letter. As I indicated at various times during hearings on the Hosgri fault and later in my letter of July 22, 1977 to John McKinley, large displacements on the Hosgri zone probably tapered off by 5 million years ago. I also do not believe the 1927 earthquake was on the Hosgri. If correct, these interpretations place a comfortably large conservatism on the assumed earthquake used for design. As noted, I am less familiar with some of the engineering interpretations but I am also not aware of any flaws in them.

George A. Thompson
George A. Thompson
Geophysicist



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FEB 16 1977

STANFORD UNIVERSITY
STANFORD, CALIFORNIA 94305

ICM

29 November 1977

DEPARTMENT OF GEOLOGY
School of Earth Sciences

RECEIVED

Dr. Chester P. Siess
805 Hamilton Dr.
Champaign, Illinois 61820

DEC 5 11 34

RECEIVED
REACTOR DIVISION
STANFORD UNIVERSITY

Dear Chester:

Recently you asked for our opinion regarding the Staff-approved seismic design response spectra for the Diablo Canyon nuclear power plant.

Based on my limited knowledge of the facts, reasoning, and procedures that have resulted in the design response spectra, I have no reason to doubt the adequacy of the latter.

My degree of confidence is naturally greatest with respect to the factors which are within my own realm of experience, and is weak in areas about which I know very little. I am confident that the Staff and the U.S.G.S. have assessed the importance and potential of the Hosgri fault in a prudent and conservative manner. Geologic evidence indicates that the fault is "capable". The chance that a major earthquake will originate on the fault at a point near the plant during the life of the facility is slight, but the assumption that such an earthquake might indeed occur is a necessary, conservative starting point in the derivation of seismic design requirements. The earthquake and its attenuation have been thoughtfully addressed by respected experts whose methods seem to me to be sound and logical. I know less about the interaction between the ground and the plant structures, and the tau-factor to be applied to various parts of the Diablo Canyon plant is entirely beyond the scope of my competence. To the extent that these considerations enter into the design requirements, I can only vaguely judge the adequacy of the final result by the apparent plausibility of the presentations we have heard and read.

In conclusion, I agree with the geologic and tectonic considerations which have been utilized by the Staff. The earthquake which has been adopted seems reasonable, as does the attenuation. Insofar as these factors are reflected in the design spectra, I have confidence in the latter. In addition, on geologic grounds I think the probability that the postulated major earthquake will occur is very small.

Sincerely,

Ben M. Page

Benjamin M. Page

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