Docket Nos. 50-275
50-323
and 50-206

JAN 2 9 1974

Mr. Verlyn G. Marth
3197 Cape Verde
Costa Mesa, California 92626

Dear Mr. Marth:

I am pleased to respond to your letter to Chairman Ray dated January 11, 1974, in which you expressed concern regarding the proximity of geologic faults to the Diablo Canyon Nuclear Plant.

Pacific Gas and Electric Company first made application for a construction permit for Unit 1 in 1967; after a public hearing, this permit was granted on April 3, 1968. Similarly, after another public hearing, Unit 2 was granted a construction permit on December 9, 1970. During both of these hearings, the issue of adequate seismic design was a contention, and in both cases the Atomic Safety and Licensing Board ruled that PG&E was appropriately designing the plant to withstand the effects of potential seismic events in the area. In addition, following the passage of the National Environmental Protection Act in 1969, an environmental hearing was convened to consider the environmental impact of the Diablo Canyon Units. This hearing is still not completed. Since the issuance of the above mentioned construction permits, construction of Units 1 and 2 has proceeded such that they are approximately 80 and 40% complete, respectively.

In July of 1973, Pacific Gas and Electric Company tendered an application to the Atomic Energy Commission for licenses to operate the Diablo Canyon Nuclear Plant, Units 1 and 2. Included in this application is an eight volume Final Safety Analysis Report; Section 2.5 of this report, titled Geology and Seismology, contains a detailed discussion of all geologic faults which the applicant believes to be sources of potential earthquake activity. Based on analyses of these faults, PG&E postulates a maximum earthquake that it believes could occur during the life of the plant, along with the maximum ground acceleration that this earthquake could produce at the site. This maximum expected acceleration was doubled to produce an additional factor of safety, and the plant was designed to withstand accelerations of up to this doubled value.

Copy sent PDR LB

OFFICE ▶						
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Form AEC-318 (Rev. 9-53) AECM 0240 GPO e13—16—81465-1 445-078

The AEC Regulatory staff, with the assistance of the U. S. Geological Survey, is presently conducting a thorough review and evaluation of the geologic and seismic information presented by PG&E for the Diablo Canyon site. In our review we will determine the suitability of the seismic design criteria proposed by the applicant. The results of our overall review will be presented in a Safety Evaluation Report; we will send you a copy as soon as it becomes available. Our current schedule calls for issuance of this report in July of 1974.

With regard to new information on geologic faults in the vicinity of the Diablo Canyon site, USGS conducted extensive offshore geologic mapping near the site during the Fall of 1973, and in November reported the discovery of possible additional offshore faults in this region. Subsequently, PG&E also performed additional mapping work in this offshore area during December of 1973. Representatives of the Regulatory staff met recently with USGS and PG&E to discuss the data obtained from these explorations. Minutes of this meeting are enclosed. Based on our review of the information obtained at this meeting, our conclusion at this time is that these newly-discovered faults could not produce ground accelerations at the site that are greater than those for which the plant is designed.

I hope that this information will be helpful to you.

Sincerely,

Original Signed by
Roger S. Boyd

A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

Enclosures:
1. Summary of Meeting Held to Discuss Recent Offshore Explorations of USGS and PG&E dated 1/11/74
2. Memo of Gammill to Hendrie dated 11/21/73

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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

Docket Nos. 50-275
and 50-323

JAN 11 1974

APPLICANT: PACIFIC GAS AND ELECTRIC COMPANY (PG&E)

FACILITY: DIABLO CANYON UNITS 1 AND 2

SUMMARY OF MEETING HELD TO DISCUSS RECENT OFFSHORE EXPLORATIONS OF USGS AND PG&E

A meeting between representatives of PG&E, USGS, and the AEC was held at the US Geological Survey offices in Menlo Park, California, on January 8, 1974. PG&E was also represented by Douglas H. Hamilton of Earth Sciences Associates, one of their geological consultants. J. Harding of the Friends of the Earth was also present, but did not participate in the meeting. The complete list of attendees is given in Enclosure No. 1.

The purpose of the meeting was to discuss faulting near Diablo Canyon that was discovered during recent offshore geologic mapping performed by both USGS and PG&E in the vicinity of the Diablo Canyon site. USGS conducted extensive work in this offshore area during the Fall of 1973, and in November reported the discovery of a possible fault in this region (see memo from W. P. Gammill to J. M. Hendrie dated November 21, 1973). PG&E performed additional mapping work in this area during December of 1973.

Mr. Holly Wagner of the USGS presented and described the offshore seismic reflection survey in the vicinity of the Diablo Canyon site. The survey design consists of continuous reflection profiles along traverses that are approximately normal to the coast line and are spaced at one-mile intervals. The staff viewed both the seismic reflection recordings and a map showing the locations and trends of three faults and two sea terraces that have been interpreted from the seismic reflection data. For our discussion the faults were referred to as Faults A, B, and C. Each was discussed as follows:

1. Fault A: At its nearest approach, this fault is located about 3 miles southwest of the Diablo Canyon site. It strikes northwest and has a total mapped length of less than one mile. The fault is confined to the Mesozoic geologic section and does not offset the sea floor. It intersects one of the sea terraces, which has a 10 foot change in elevation, at a small angle, and it was at this point of intersection that the original seismic profile (#139) crossing occurred. As a

consequence of this intersection, fault A was originally believed to offset the sea floor. Subsequent review of the seismic profile and additional profiling show that what was believed to be fault offset of the sea floor is actually a sea terrace which has a height of 10 feet at this point and no offset of bedding.

2. Fault B: This fault trends subparallel to fault A and is about four miles southwest of the plant site at its closest approach. As with fault A, fault B is also contained within the Mesozoic section. Terrace deposits cover the fault in one region and, while it is clear that it does not offset the sea floor, the fault may extend into the terrace deposits. The total mapped length of fault B is approximately six miles.

3. Fault C: This fault also trends subparallel to faults A and B, and is about five miles from the Diablo Canyon site at its nearest approach. It is contained within the Tertiary geologic section, and the youngest formations which are offset by it are Pliocene. There is no evidence that the fault offsets the sea floor in its total mapped length of nine miles.

An offshore geologic feature described in a report by Hoskins and Griffith[1] was also discussed at the meeting. This feature has been mapped by Hoskins and Griffith for a length of approximately 90 miles, at a distance of about 5-6 miles offshore from the Diablo Canyon site. They described it as a fault zone, heading northwest, that separates a major Tertiary sedimentary basin on its west side from Mesozoic rocks on its east side. The staff had previously requested additional information from PG&E on this fault (See questions from the completeness review dated August 13, 1973, and first round questions dated January 4, 1974; both of these requests were sent to PG&E as part of the overall safety review process). The applicant is continuing his investigations of the seismic significance of this feature.

Doug Hamilton presented data from the PG&E sponsered explorations of the same offshore area, and there was good general agreement between these results and the USGS data. Hamilton indicated that he is preparing a final report for PG&E on the findings of the offshore explorations. He mentioned that this report would be available the first part of February. Holly Wagner said that the USGS report should be finished about the same time.

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[1] Hoskins, E. G., and J. R. Griffith, 1971, "Hydrocarbon Potential of Northern and Central California Offshore," in Cram, I. H. (editor), Future Petroleum Provinces of the United States -- Their Geology and Potential, Amer. Assoc, Petrol. Geol. Men. 15, Vol. 1, p. 212-218.

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The staff has evaluated the offshore exploration data obtained to date by USGS and PG&E. As a result of this evaluation, the staff feels that faults A and B are local features which do not represent potential earthquake sources that would produce accelerations at the site which are greater than those produced by the safe shutdown earthquake set forth by PG&E in the FSAR.

Fault C may be related to the larger structural feature described by Hoskins and Griffith; however, its limited extent of nine miles makes it a minor source of potential earthquake activity, regardless of its relation to the Hoskins - Griffith feature. As with faults A and B, the staff feels that accelerations at the site produced by fault C would be well within the limits for which the plant is designed.

Thomas J. Hirons

Thomas J. Hirons
Light Water Reactors Group 1-3
Directorate of Licensing

Enclosure:
Attendance List

ENCLOSURE NO. 1

ATTENDANCE LIST

PACIFIC GAS AND ELECTRIC

V. J. Ghio
W. J. Lindblad

EARTH SCIENCES ASSOCIATES

D. H. Hamilton

USGS

R. Jerkes
F. McKeown
H. Wagner

AEC - LICENSING

W. P. Gammill
T. J. Hirons
R. B. McMullen
J. C. Stepp

FRIENDS OF THE EARTH

J. Harding