

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

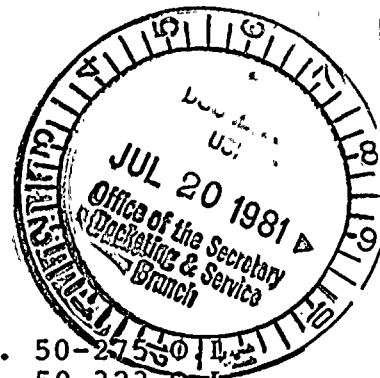
In the Matter of

PACIFIC GAS AND ELECTRIC COMPANY

(Diablo Canyon Nuclear Power
Plant, Unit Nos. 1 and 2)

7/16/81)
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Docket Nos. 50-2750
50-323 O.L.

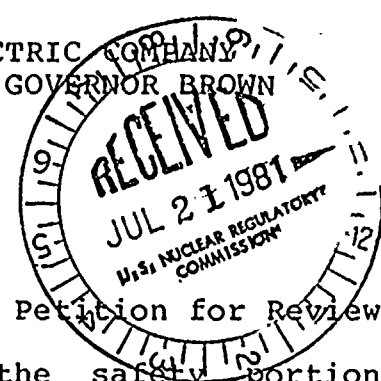


RESPONSE OF APPLICANT PACIFIC GAS AND ELECTRIC COMPANY
TO PETITION FOR REVIEW OF ALAB-644 FILED BY GOVERNOR BROWN

I

INTRODUCTION

On July 1, 1981, Governor Brown filed a Petition for Review of ALAB-644, a decision on the seismic aspect of the safety portion of these licensing proceedings which was issued on June 16, 1981. The Governor raises four factual issues for review by this Commission: magnitude saturation, effective acceleration, tau effect, and seismic focusing. (Br. Pet. at 4.)^{1/} Each of these factual issues were considered in great detail by the Licensing Board and affirmed, after extensive review by the Appeal Board. It is respectfully submitted that the Governor's Petition for Review should be denied.



The seismic questions concerning Diablo Canyon have undoubtedly received more attention and man-hours of study than any other single subject in the history of the Nuclear Regulatory Commission and its predecessor, the Atomic Energy Commission, with

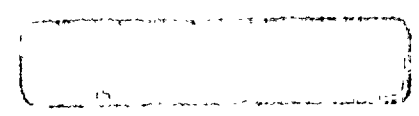
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^{1/}Citations will be as follows: Appeal Board decision: ALAB-644 at ___; Licensing Board seismic decision: LBP-79-26, 10 NRC 453; Brown Petition for Review of ALAB-644: Br. Pet. at ___.

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the possible exception of circumstances surrounding Three Mile Island. The Advisory Committee on Reactor Safeguards (ACRS) spent several years conducting sub-committee and full committee hearings assisted by nine technical consultants before issuing its letter approving Diablo Canyon's seismic safety in 1978. (SER Supp. 8, p. B-3.) The Licensing Board conducted hearings over a three month period, December of 1978 and through February of 1979, before issuing its decision also approving the facility's seismic safety. (LBP-79-26, 10 NRC 453, 1979.) The Appeal Board reopened the proceedings following the Imperial Valley earthquake of October 15, 1979 and conducted hearings during October, 1980. The Appeal Board, after hearing and review of the record below, issued ALAB-644 which also finds that the Diablo Canyon plant is seismically safe. The transcript of the Licensing and Appeal Board hearings is in excess of 10,000 pages and admitted exhibits make the record, on seismic questions alone, number in the tens of thousands of pages. Incongruously, Governor Brown argues that because of, as opposed to despite, the depth of this scrutiny, the Commission must "review the merits of this case." (Br. Pet. at 4.) The governing regulations of this Commission and the facts of this case preclude such a review.

Governor Brown would have this Commission believe that the Hosgri reanalysis of Diablo Canyon was nothing more than a paper exercise, "suspicious from the outset," ending up in a "post-hoc rationalization." (Br. Pet. at 2.) Such a characterization is simply unfounded and untrue. The reanalysis has resulted in over one-hundred million dollars of modifications to Diablo Canyon, e.g., turbine building modification, vital outdoor storage tanks, piping



hangar and raceway supports, etc. (SER Supp. 8, paragraphs 3.8.5.4.5, 3.8.5.4.7, 3.9.3.5, respectively.) In addition, the reanalysis has shown the facility able to withstand, with the modifications, the maximum accelerations to be expected from any credible event on the Hosgri fault. The Governor's mischaracterization is artfully done by the careful selection and distortion of certain phrases and words while totally ignoring the massive weight of evidence adduced below.^{2/} On the other hand, both the Licensing Board and the Appeal Board have presented the evidence in a responsible manner and draw their conclusions therefrom in an objective fashion. The seismic safety of Diablo Canyon has been reviewed extensively by the NRC Staff, the ACRS, the Licensing

^{2/}For example, Governor Brown repetitively argues (Br. Pet. at 1, 2, 4 and 10) that the plant was sited "on the basis of a critical mistaken assumption. . . that the closest earthquake fault was 12 miles away and capable of only a M 6.75 earthquake." (Br. Pet. at 1 and 2, emphasis added.) In actuality, the Applicant assumed a M 6.75 earthquake anywhere at the site (including directly beneath the plant) at a depth of 6 miles with an estimated depth to the center of the fault plane (focal depth) being 12 miles. (PSAR, p. 2-23.) This was expressed by both Dr. Blume and Dr. Smith in pre-filed testimony before the ASLB. (Blume written Test. ff. Tr. 6099 at pp. 9-11; Smith Written Test. ff. Tr. 5490 at p. 2.) The originally postulated M 6.75 earthquake was assumed to originate anywhere in the region including directly beneath the plant site at a distance of 6 miles. The 12-mile distance was taken to represent the distance through the crust from the site to the center of energy release (focal depth) of the postulated M 6.75 earthquake, not, as Governor Brown states, that "the closest earthquake fault was 12 miles away." It is this sort of distortion that permeates the Governor's Petition for Review.

The assignment of a M 7.5 to the Hosgri is a very conservative one which was based upon the USGS conclusion that the 1927 Lompoc earthquake of M 7.3 possibly occurred on the Hosgri. As the Appeal Board noted in its decision (ALAB-644 at 29, fn 38), that assignment has been significantly weakened by recent studies tending to the conclusion that the 1927 event did not occur on the Hosgri.



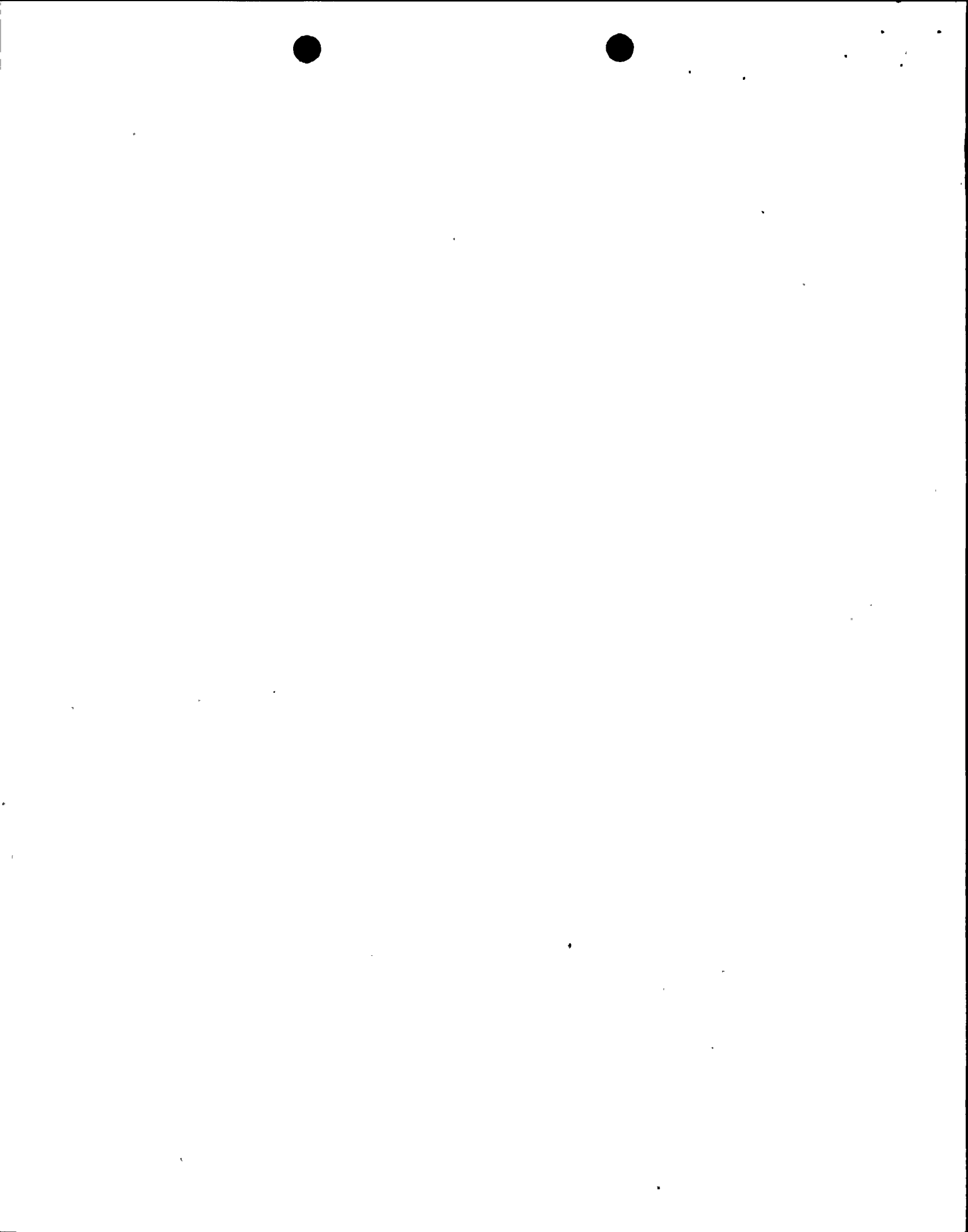
Board, and the Appeal Board. Each review has resulted in the same factual conclusion: Diablo Canyon is seismically safe.

II

THIS COMMISSION'S OWN REGULATIONS PRECLUDE GRANTING OF THE PETITION FOR REVIEW

It is well established that an agency must follow its own procedural rules. Vitarelli v. Seaton, 359 U.S. 535 (1959); United States ex rel. Accardi v. Shaughnessy, 347 U.S. 260 (1954). To do otherwise would invalidate any resulting action. Sangamon Valley Television Corp. v. United States, 269 F. 2d 221 (D.C. Cir. 1959). After reading Governor Brown's Petition for Review it is obvious that the Governor simply disagrees with the factual determinations of ALAB-644. Of the four arguments raised by the Governor only that concerning "effective acceleration" is even arguably a mixed question of fact and law, i.e., whether effective acceleration is permitted by 10 C.F.R. Part 100, Appendix A. That effective acceleration is a valid concept permissible under Appendix A has already been decided. Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 63 (1977), rev'd on other grounds, CLI-80-33, 12 NRC 295 (1980). The other three issues raised by the Governor, magnitude saturation, tau effect and seismic focusing, are explicitly factual in nature.

In short, the Governor asks this Commission to duplicate the factual review conducted by the Licensing and Appeal Boards. In so doing, the Governor has ignored 10 C.F.R. §2.786(b)(4) which provides, in pertinent part, that:



(4) The grant or denial of a petition for review is within the discretion of the Commission, except that:

(i)

(ii) A petition for review of matters of fact will not be granted unless it appears that the Atomic Safety and Licensing Appeal Board has resolved a factual issue necessary for decision in a clearly erroneous manner contrary to the resolution of that same issue by the Atomic Safety and Licensing Board.

That 10 C.F.R. §2.786(b)(4)(ii) means precisely what it says can be confirmed by a review of the legislative history of that section. In adopting this language, the Commission explained:

The Commission believes that as to factual matters, two levels of decision within the agency are enough, and that there is no need for a third factual review by the Commission itself. [42 Fed. Reg. 22128 (May 2, 1977).]

The Governor's Petition for Review is simply a disagreement with the factual determinations of the Appeal and Licensing Boards which resolved the same issues in the same manner. As such the Petition cannot be granted by this Commission.

III

MAGNITUDE SATURATION

Governor Brown continues to misunderstand (and thereby misleads this Commission) the very concepts upon which he bases his petition. In his argument, the Governor mistakenly equates magnitude saturation with magnitude independence. (Br. Pet. at 4-6.) No one

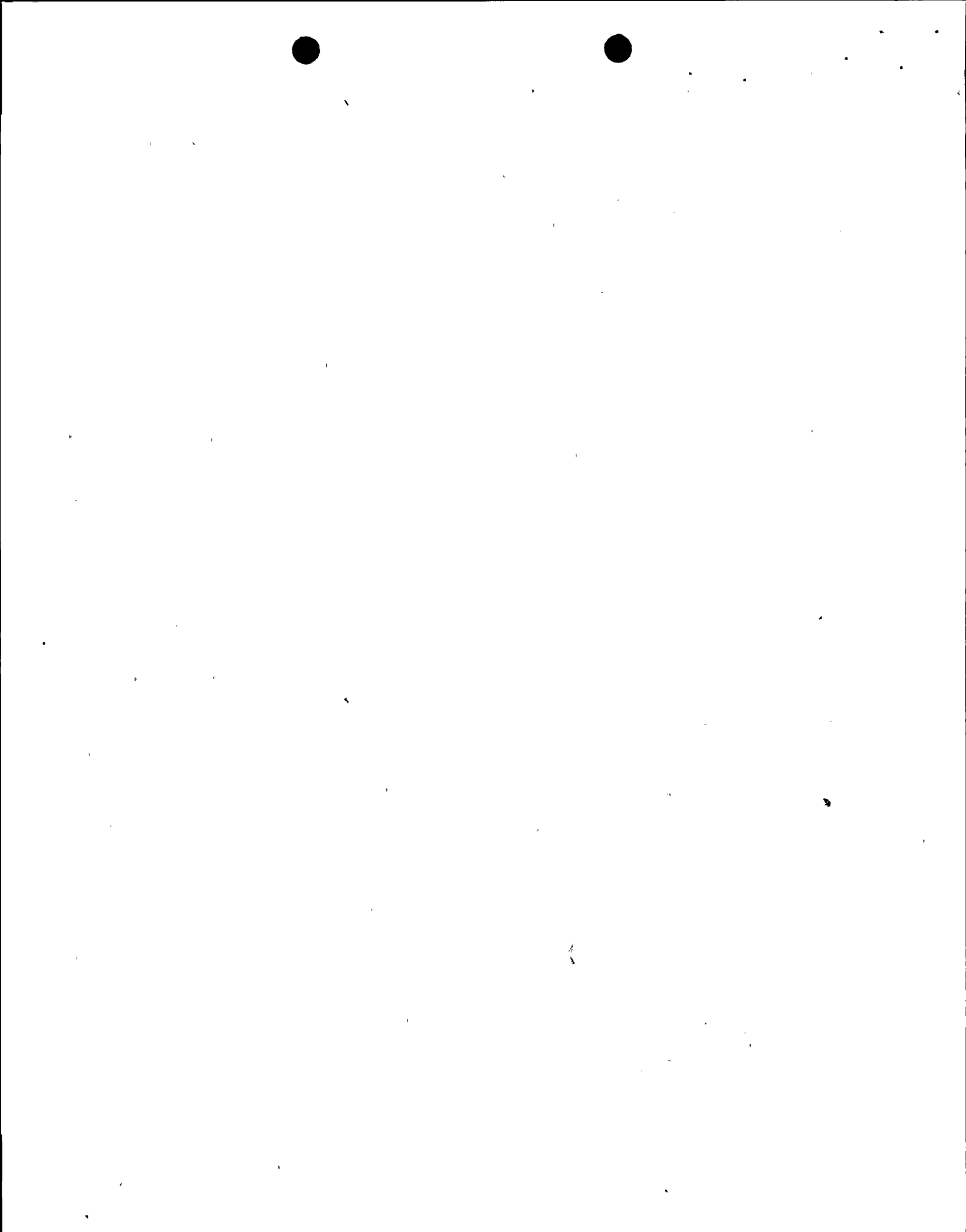


has ever argued that acceleration is independent of magnitude, but rather, that as magnitude increases acceleration also increases, but at a decreasing rate. (ALAB-644 at 42, et seq.) The Governor also argues that there is no data regarding earthquakes above M 6.5 and therefore magnitude saturation for a M 7.5 is unknown. The Governor apparently chooses to ignore ALAB-644 at page 47, et seq., and the evidence cited therein, where, for example, Dr. Seed's data include a measurement at 5 km for a M 7.8 earthquake which "fully support Hanks and Johnson's conclusion on saturation." It is also interesting to note that the Governor continues to argue (Br. Pet. at 5, fn. 9) that the Imperial Valley 1979 earthquake was something other than its officially reported M_s 6.9. (ALAB-644 at 48.)

IV

EFFECTIVE ACCELERATION

The Hosgri reanalysis design spectrum for Diablo Canyon was anchored at 0.75g, a decision which both the Licensing and Appeal Boards found safely conservative. (ALAB-644 at 56-76.) Governor Brown argues that the free field spectrum should not have been anchored at 0.75g but rather at 1.15g as "recommended by the USGS." (Br. Pet. at 6.) Again, faced with little or no comfort from the record, the Governor relies on misconstruction. No one, not the Licensing Board, the Appeal Board, expert witnesses, nor the USGS testified about free field spectrum as being 0.75g. The USGS did not recommend a free field spectrum (or any other spectrum) be anchored at 1.15g. The 1.15g is the peak free-field acceleration predicted by the USGS to occur with a M 7.5 earthquake. (SER Supp. 4, p. C-16.) Governor Brown blithely ignores



the fact that USGS-672 specifically recommended deriving design spectra by modifying the peak free field accelerations for design purposes. Specifically, USGS recommended as follows:

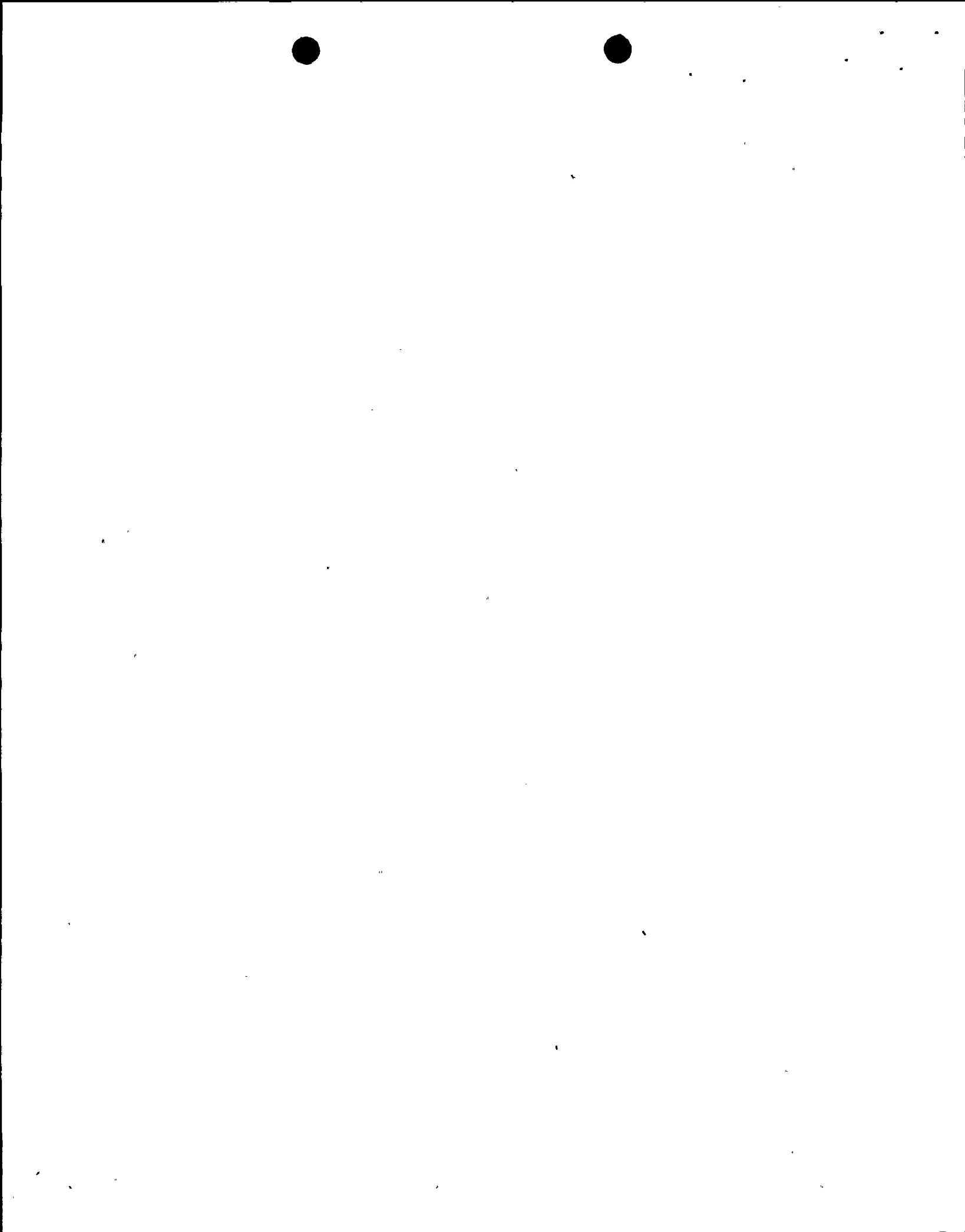
It is our intention that the ground motion values as exemplified by Table 2 'Near-fault horizontal ground motion' of Ref. 4 [i.e., USGS 672] for magnitude 7.5 be used to form the basis of a description of the earthquake postulated to have the potential for occurring on the Hosgri Fault at a point nearest to the Diablo Canyon site subject to the conditions placed on these values in Ref. 4. The earthquake so described should be used in the derivation of an effective engineering acceleration for input into the process leading to the seismic design analyses. (SER Supp. 4 at C-16, emphasis added.)

The derivation of design response spectra and the anchoring thereof is the only acceptable method of design discussed throughout these entire proceedings. Governor Brown somehow argues that earthquake design engineering should be thrown out the window and design should be based on simple free field accelerations. Even a brief reading of the Appeal Board's excellent discussion of this highly technical subject shows the Governor's position to be nothing more than argument based on illogical principles and unsupported assumptions. (ALAB-644 at 56-72.)

V

TAU EFFECT

Certain reductions were taken from the anchor point of 0.75g for large structures at Diablo Canyon. These reductions are based on the so-called "tau effect." Governor Brown simply argues that the Appeal Board was wrong in finding those reductions

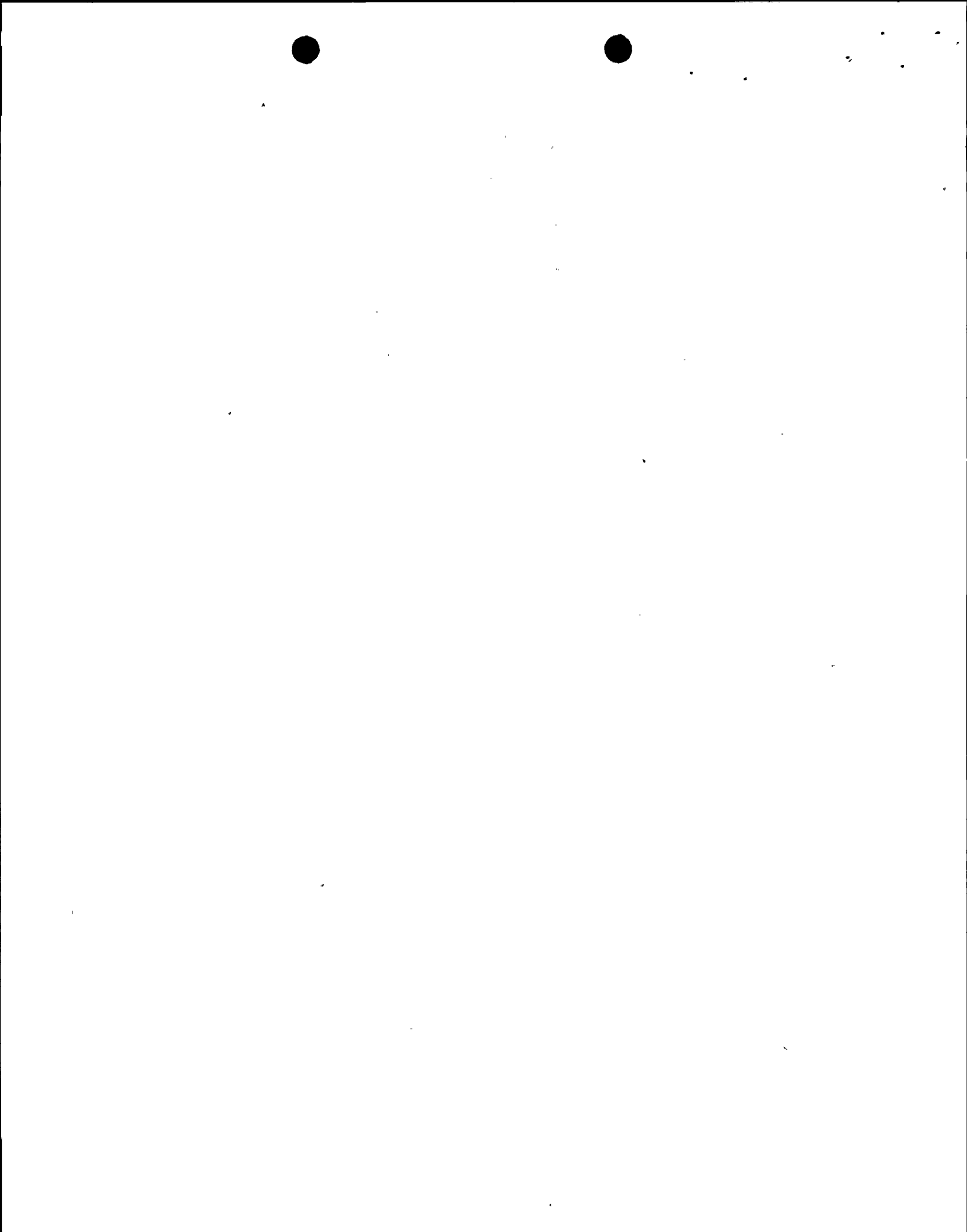


appropriate. The Appeal Board's treatment of this complex subject was extremely thorough. A reading of ALAB-644 (pp. 114-145) completely dispels the Governor's position and shows solid bases for the reductions.

VI

SEISMIC FOCUSING

The Governor's argument on this subject is found in only several sentences at page 6 of the Petition for Review. In essence, the Governor argues that if modeling studies performed by the Applicant, which failed to show significant effects of the "focusing" phenomena, had been done differently, the results would have been different. What the Governor chooses to ignore, however, is the overwhelming evidence supporting the Licensing and Appeal Boards' findings that seismic focusing is simply not a significant factor at Diablo Canyon. (ALAB-644 at 77-87.) The only witness in the entire history of the proceedings who felt focusing could perhaps be a problem was Dr. Brune who could cite no such values as he was hypothesizing as ever having been recorded (ALAB-644 at 87). Before the Licensing Board, all witnesses, including Dr. Brune, agreed that focusing occurs in all earthquakes. (ASLB Tr. at 7951, 8075.) Dr. Brune stated, however, that its significance had not been established because there simply had not been enough strong motion near field earthquake records. (ASLB Tr. at 7929, 7945, 7946, 7956, 7978 and 8129.) After that early 1979 testimony, the October 15, 1979 earthquake occurred. Dr. Brune admitted that the Imperial Valley



earthquake, which was the most heavily instrumented near field strong motion earthquake in history, showed no significant effects of focusing. (Brune Written Testimony at Reopened Hearing, ff. Tr. 601 at p. 8.)

There is simply no evidence in the record to support the Governor's position on this question. Both Boards properly found that seismic focusing is not of any significance for the Diablo Canyon facility.

VII

CONCLUSION

The Governor's Petition for Review is a request for this Commission to review certain factual findings of the Appeal Board which affirmed previous factual findings of the Licensing Board. As such, the Petition must be denied under the Commission's own regulation, §2.786(b)(4)(ii).

Respectfully submitted,

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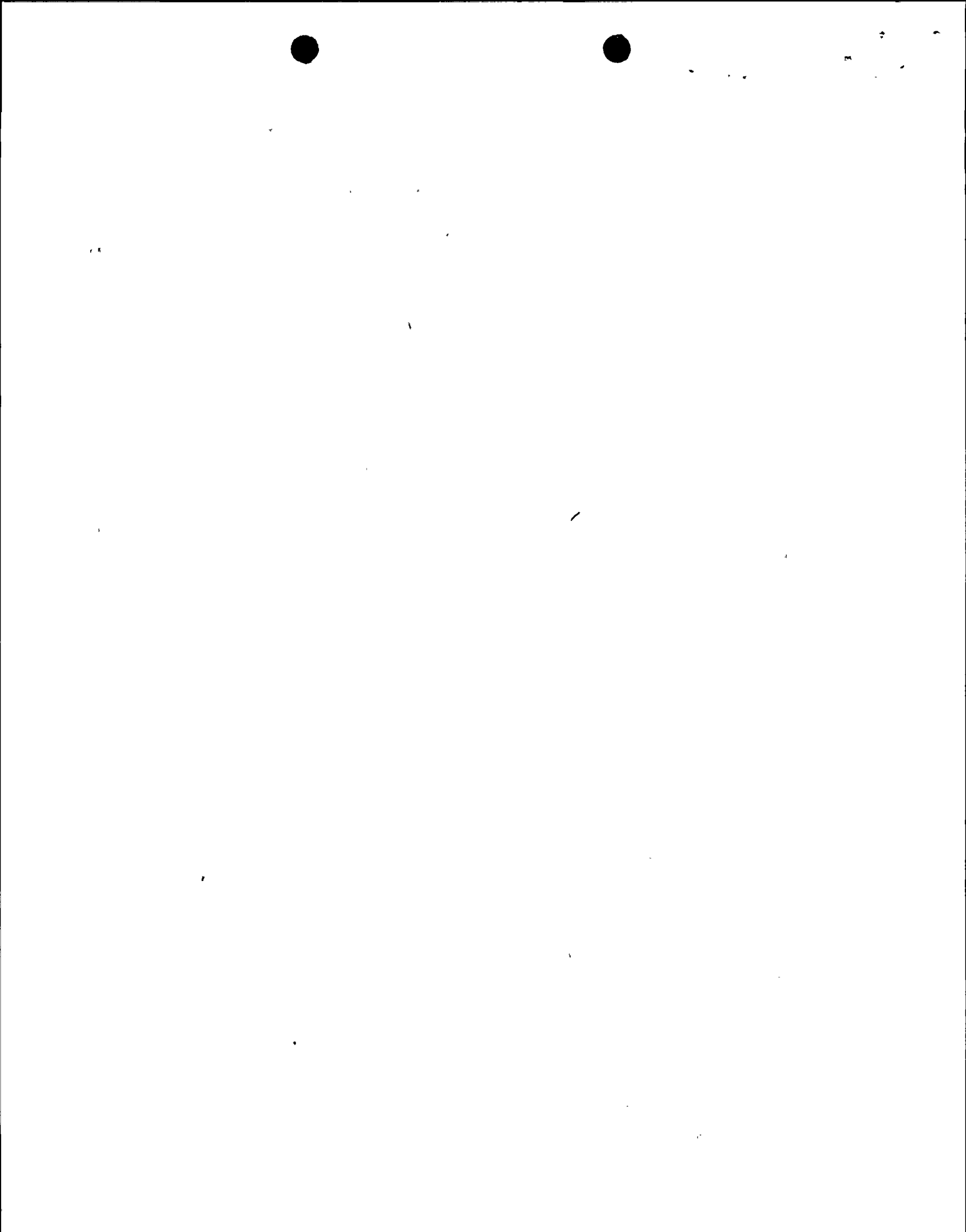
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DATED: July 16, 1981.



UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of)
PACIFIC GAS AND ELECTRIC COMPANY) Docket Nos. 50-275 O.L.
(Diablo Canyon Nuclear Power) 50-323 O.L.
Plant, Units No. 1 and 2))

CERTIFICATE OF SERVICE

I hereby certify that copies of "RESPONSE OF APPLICANT PACIFIC GAS AND ELECTRIC COMPANY TO PETITION FOR REVIEW OF ALAB-644 FILED BY GOVERNOR BROWN", dated July 16, 1981, have been served on the following by delivery to the United States Postal Service, postage prepaid, this 16th day of July, 1981:

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