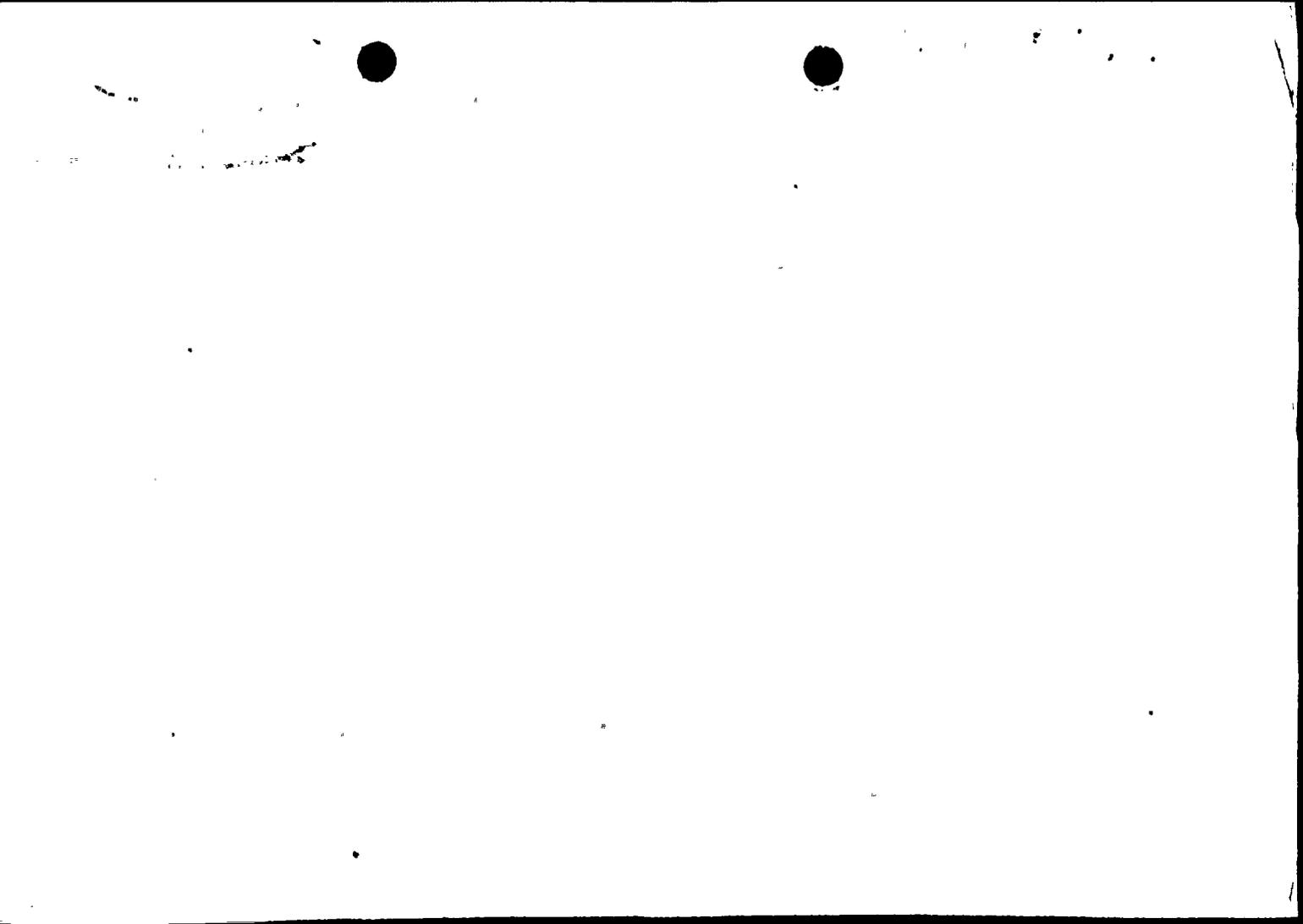


Docket Files
(50-323)

FROM: Ralph Nader 2000 P Street, N.W. Washington, D.C.		ACTION CONTROL COMPL DEADLINE ACKNOWLEDGMENT INTERIM REPLY	DATES 4/23/76	CONTROL NO. 00186
TO: Chairman Anders		FINAL REPLY FILE LOCATION	DATE OF DOCUMENT 4/8/76	
DESCRIPTION <input checked="" type="checkbox"/> LETTER <input type="checkbox"/> MEMO <input type="checkbox"/> REPORT <input type="checkbox"/> OTHER Req reassessment of criteria allowing nuclear plants to operate in high-intensity earthquake areas & FOIA request for documents pertaining to seismology		SPECIAL INSTRUCTIONS OR REMARKS Clear with the Commission the part concerning show cause Please confer w/ELD & Mr. Felton by 4/14 If it is anticipated request may be denied, proposed response should be submitted to Mr. Donoghue by 4/20 FOIA-76-276 FREEDOM OF INFORMATION ACT REQUEST		
CLASSIFIED DATA				
DOCUMENT/COPY NO.		CLASSIFICATION		
NUMBER OF PAGES		CATEGORY		
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				NO LEGAL OBJECTIONS NOTIFY:
				<input type="checkbox"/> EDO ADMIN & CORRES BR
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				COMMENTS, NOTIFY:
				EXT. _____
		JCAE NOTIFICATION RECOMMENDED: <input type="checkbox"/> YES <input type="checkbox"/> NO		



No. 76-1560

Logging Date 4/8/76

NRC SECRETARIAT

- TO: Commissioner _____ Date _____
- Exec. Dir./Oper. _____ Gen. Counsel _____
- Cong. Liaison _____ Solicitor _____
- Public Affairs _____ Secretary _____
- _____

Incoming: Ralph Nader, 7th Floor, 2000 P St.,
N.W. D.C. 20036

From: _____

To: Chairman Anders Date 4/8/76

Subject: Requesting NRC action and reassessment
in allowing nuclear plants to operate in high-
intensity earthquake areas and FOIA request for
relevant documents.

- Prepare reply for signature of:
- Chairman
- Commissioner _____
- EDO, GC, CL, SOL, PA, SECY *Clear response w*
- Signature block omitted *Commission. prior to*
- _____ *Dispatch.*
- Return original of incoming with response

- For direct reply* **SUSPENSE:** April 22
 (approximate)
- For appropriate action
- For information
- For recommendation

Rec'd Off. by _____
 Date 3/9/76
 Time 11:10

Remarks: Cy of incoming to Chairman Anders, Cmsr.,
PE, PA, OGC, Division of Rules and Records.
Div. of Rules and Records to set suspense for
FOIA. Attachment to EDO.

For the Commission: W.H.H.

*Send three (3) copies of reply to Secy Mail Facility

10

April 8, 1976

William A. Anders, Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Anders:

There are major uncertainties over the ability of nuclear power plants sited in California and other high intensity earthquake areas to continue operation without a catastrophic accident. These uncertainties require prompt and aggressive action by the Nuclear Regulatory Commission (NRC). Operation and construction of nuclear power plants in earthquake zones should be halted until the NRC has performed a detailed reanalysis of its seismic design and seismology criteria.

Your agency has already received a report from Thomas Collins, a U.S. Forest Service geologist in Trinidad, California; on the serious problems with Pacific Gas and Electric's Humboldt Bay nuclear plant. Mr. Collins reported that the Humboldt Bay plant is located directly above an active fault zone. Mr. Collins also stated that on the basis of the ground motion which the plant is supposed to withstand, the seismic design for Humboldt is inadequate. (Seismic Hazards At The Humboldt Bay Nuclear Plant, Thomas Collins, January 1976, submitted to the Nuclear Regulatory Commission.)

Your attention is also drawn to Mr. Stanley H. Mendes, a structural engineer from Santa Barbara, California who believes there are "substantial questions as to whether adequate earthquake safety provisions have been incorporated in the design of nuclear power facilities constructed in California and elsewhere." (Letter from Stanley H. Mendes, Santa Barbara, California, March 30, 1976) Enclosed are copies of a letter from Mr. Mendes, and his testimony before the California Senate Committee on Public Utilities, Transit, and Energy, March 23, 1976.

In his March 23 statement, Mr. Mendes addresses the following problems:

1. The basic design criteria for the earthquake safety provisions of nuclear facilities are incorrect. The NRC apparently has not adjusted its design criteria to consider information from the 1971 San Fernando (California) earthquake, which "clearly demonstrated to all knowledgeable persons that there is still much to be learned before we can construct totally earthquake-proof facilities." (p. 2)
2. Although public schools and hospitals receive in-depth, independent reviews of their earthquake safety provisions, no such independent review is made by NRC for the earthquake safety of nuclear power plants. (p. 3,11)



3. The NRC hearing process is not conducive to candid discussion, which would reveal the deficiencies in the state of the art in earthquake design. (p. 4) "I seriously doubt that the State of the Art is sufficiently advanced to produce the relatively risk-free facilities to which the people of California are entitled." (p. 2)

Mr. Mendes points out as an example that in January 1973, he expressed doubt that sufficiently detailed explorations of fault systems offshore of Pacific Gas and Electric's Diablo Canyon nuclear plants had been made. (p. 8) Since that time, an offshore fault has been discovered and the NRC has been forced to reanalyze the earthquake design criteria for Diablo Canyon.

4. Nuclear power plants designed fifteen years ago may very possibly be found not to provide adequate earthquake protection today. (p. 4) This statement, of course, has been confirmed by Mr. Collins' paper. The Humboldt Bay plant began operation in 1962, 14 years ago.

Also relevant is a briefing given by the U.S. Geological Survey (USGS) to the staff of Governor Brown of California, on the "uplifting" along California earthquake zones. The USGS has stated that another great earthquake along the San Andreas fault is "inevitable, possibly within the next decade." A copy of the USGS briefing summary is enclosed.

An earthquake in and of itself could obviously do serious damage in populated areas. But if the earthquake were also to cause a reactor accident, the catastrophe would be seriously compounded. Persons unaffected by the earthquake could be contaminated by radioactive materials from the reactor. Rescue efforts could similarly be hampered by radioactive contamination of people and land. It is therefore imperative that if the NRC is to license nuclear reactors, they be able to withstand, beyond any reasonable doubt, earthquakes in California and other areas.

It is noteworthy that uncertainties over earthquake design contributed to the recent resignations of four nuclear engineers-- three from the General Electric Company and one from the NRC. In its statement before the Joint Committee on Atomic Energy on March 2, 1976, the NRC staff said that it has already started the reevaluation of "older plants located in high seismic risk areas such as Humboldt Bay and San Onofre 1." (NRC Staff Response To The Testimony of Bridenbaugh, Hubbard, and Minor, p. VI-25). It is also recognized that the NRC is reevaluating the earthquake risks to Diablo Canyon, mentioned above, and to Consolidated Edison's Indian Point plant. ("Quake Risks Studied for Nuclear Sites," New York Times, March 30, 1976, p. 41)



It is requested that the NRC not only expedite that reevaluation; but also cease the operation (except in areas where substitute power is not available) and construction of all nuclear plants in areas of high earthquake risk until a reevaluation of those plants' seismology and basic seismic design criteria is completed. I also request, pursuant to the Freedom of Information Act, the following materials:

1. All documents pertaining to seismology and seismic design criteria for all California reactors.
2. All documents related to any reevaluation of seismology or seismic design for reactors, including but not limited to all California reactors being reevaluated. Please provide a list of all reactors being reevaluated.
3. All documents pertaining to the need to retrofit older reactors to provide adequate earthquake protection.
4. All documents pertaining to the San Fernando earthquake of 1971, as it relates to nuclear power plant design. All documents related to any NRC reanalysis of seismic design criteria in light of information from the San Fernando earthquake.
5. All documents on the "uplift" of the San Andreas fault, as it relates to nuclear power plants and nuclear power plant design.
6. All documents pertaining to the independent NRC review, or lack thereof, of seismology and seismic design at nuclear plants.

I request that copies of documents released in response to this request be placed in local public document rooms in California and other applicable locations.

Sincerely,

A handwritten signature in dark ink, appearing to read 'R. Nader', with a stylized 'R' and 'N'.

Ralph Nader

Enclosures:

1. Letter of Stanley H. Mendes, Santa Barbara, California, to Ralph Nader, March 30, 1976 (without attachments)
2. Statement of Mr. Mendes, March 23, 1976
3. Summary of USGS Briefing to the Staff of Edmund G. Brown, Governor of California, March 17, 1976.



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STANLEY H. MENDES

STRUCTURAL ENGINEER

1226½ STATE ST. SUITE 7

SANTA BARBARA, CALIF. 93101

PHONE (805) 962-9870

March 30, 1976

Mr. Ralph Nader
Public Citizen, Inc.
P. O. Box 19404
Washington, D. C. 20036

Dear Mr. Nader:

Certain activities on the part of the Nuclear Regulatory Commission (formerly Atomic Energy Commission) raise substantial questions as to whether adequate earthquake safety provisions have been incorporated in the design of nuclear power facilities constructed in California and elsewhere. Can you help to make public this situation so that needed changes in NRC procedures might be forthcoming.

I have personally witnessed "coverup" and "stonewalling" actions which may still be taking place in conjunction with the Diablo Canyon facilities of Pacific Gas & Electric Company now nearing completion at San Luis Obispo, California.

Immediately after the San Fernando earthquake of 1971, all knowledgeable geologists, seismologists, and engineers knew full well that many of the basic design criteria and assumptions commonly made in earthquake resistant design were incorrect.

Only now, five years after the San Fernando earthquake, is the NRC apparently finally questioning the design adequacy of the Diablo Canyon facilities. The questioning may be sincere or it may be just a ploy; time will tell. It comes as a result of the recent discovery of an offshore active earthquake fault capable of generating an earthquake of major proportions.

Beginning in July, 1971, all attempts by me to question the basic design criteria for the Diablo Canyon facilities were brushed aside by the AEC and Pacific Gas & Electric Company. Not once would the AEC permit, as part of the official proceedings, any public discussion regarding adequacy of the earthquake safety provisions for the facilities.

The details of my experiences are clearly set forth in my exchange of correspondence (copies enclosed) in 1974 with Dr. Dixy Lee Ray, then chairman of AEC. Also enclosed is a paper dated March 23, 1976, containing pertinent information which was presented at public hearings on the Nuclear Initiative held by the State Senate Committee on Public Utilities, Transit and Energy in Sacramento, California.



STANLEY H. MENDES
STRUCTURAL ENGINEER

Ralph Nader

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March 30, 1976

I can furnish all additional necessary documentation of my experiences, including copies of official proceedings, interrogatories and responses, etc. Please let me know if you are interested in this matter.

Very sincerely yours,

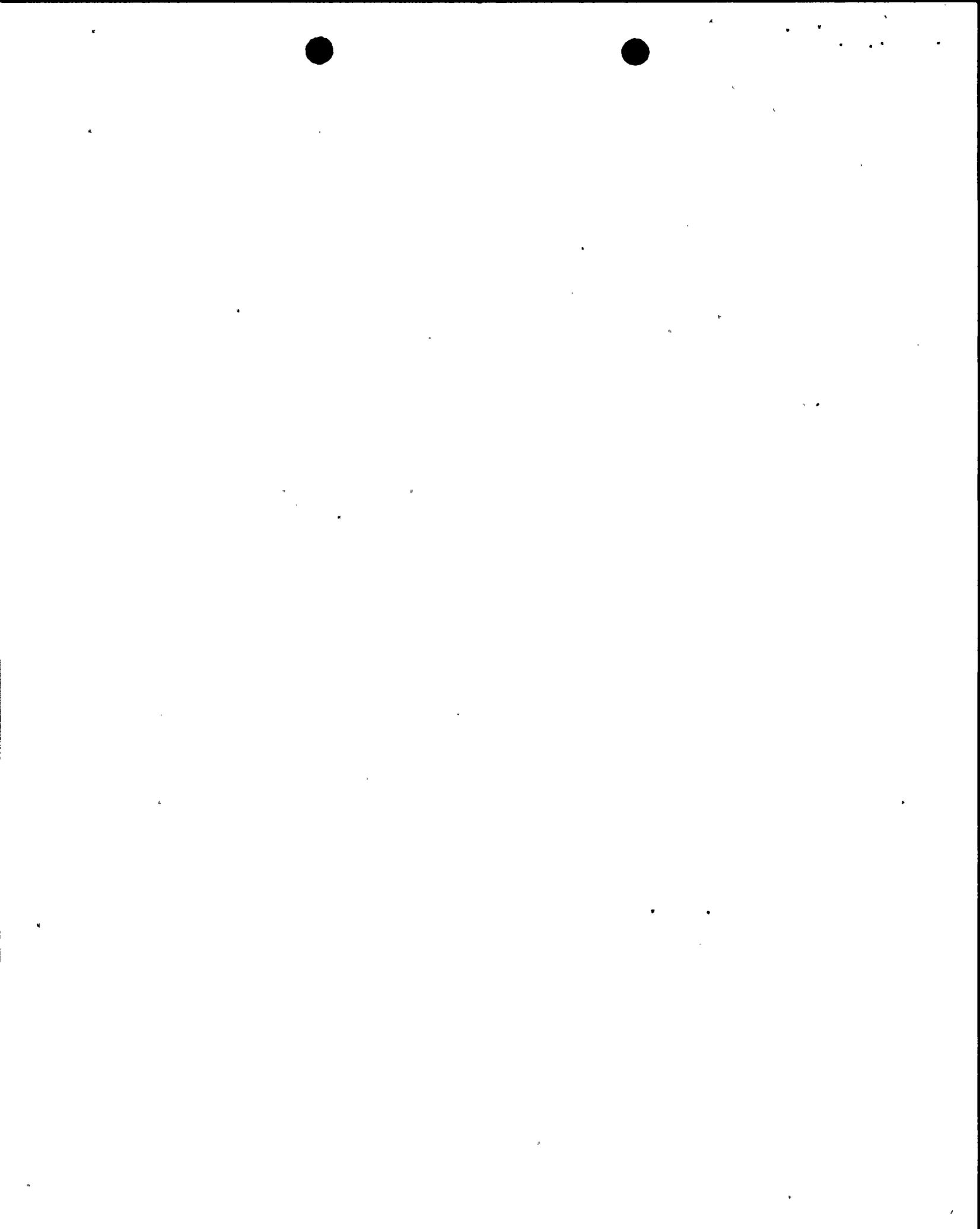
Stanley H. Mendes

Stanley H. Mendes

SHM:pm

Enclosures:

Presentation to State Senate Committee of March 23, 1976.
Affidavit of Stanley H. Mendes dated January 23, 1973.
Dr. Dixy Lee Ray correspondence dated January 9 & 29, 1974,
and February 19, 1974, and April 15, 1974.
Enclosures 1 through 28 of AEC letter of April 15, 1974.
Portions of Draft Environmental Statement by AEC dated
December 1972.
Portions of Safety Evaluation of Diablo Canyon facilities
by AEC dated October 16, 1974.
Seismic Evaluation of Diablo Canyon Site dated May 28, 1968,
and Recommended Earthquake Design Criteria dated
June 24, 1968.
Resumé of Stanley H. Mendes.



STANLEY H. MENDES

STRUCTURAL ENGINEER

1220 1/2 STATE ST. SUITE 7

SANTA BARBARA, CALIF. 93101

PHONE (805) 962-9870

March 23, 1976

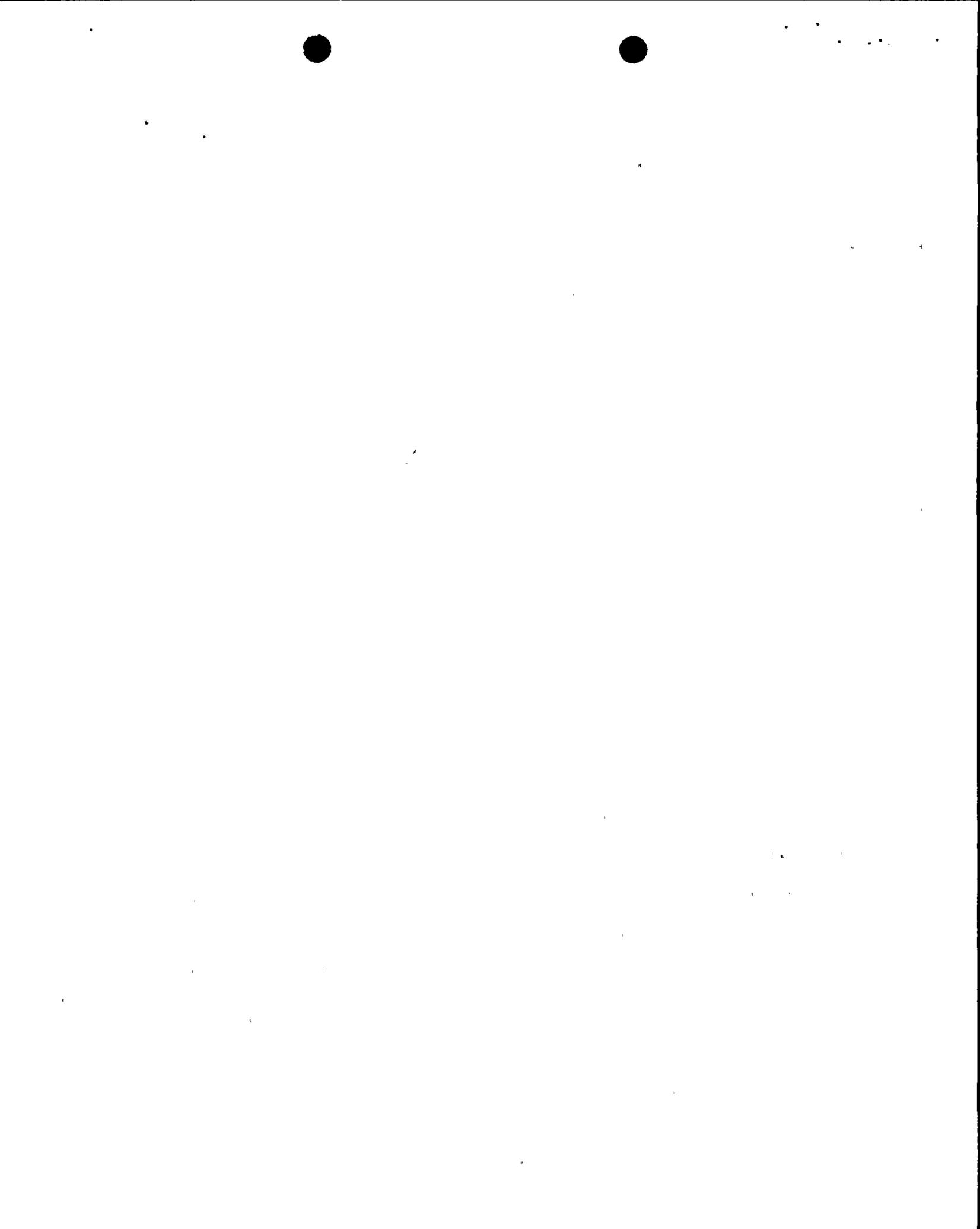
The Honorable Alfred E. Alquist, Chairman
and Members of
Senate Committee on Public Utilities, Transit and Energy
State Capitol Building
Sacramento, California 95814

Gentlemen:

My purpose in appearing before this committee is, hopefully, to make you concerned enough to investigate and determine, first hand, how the Nuclear Regulatory Commission (formerly the Atomic Energy Commission) really functions to supposedly provide effective earthquake safety regulation of the construction of nuclear power facilities. If you will really dig in and investigate, you will likely open up the biggest can of worms this state has seen in a long time.

I hope to convince this committee that the Nuclear Power Plant Initiative, as written, has true merit, that it is long overdue and much needed, and that you should willingly accept responsibility for determining that adequate safety provisions are incorporated into the design and construction of nuclear power facilities in California.

A proliferation of nuclear power facilities has been and is in process before proven earthquake safety provisions have been developed. The San Fernando earthquake of 1971 clearly



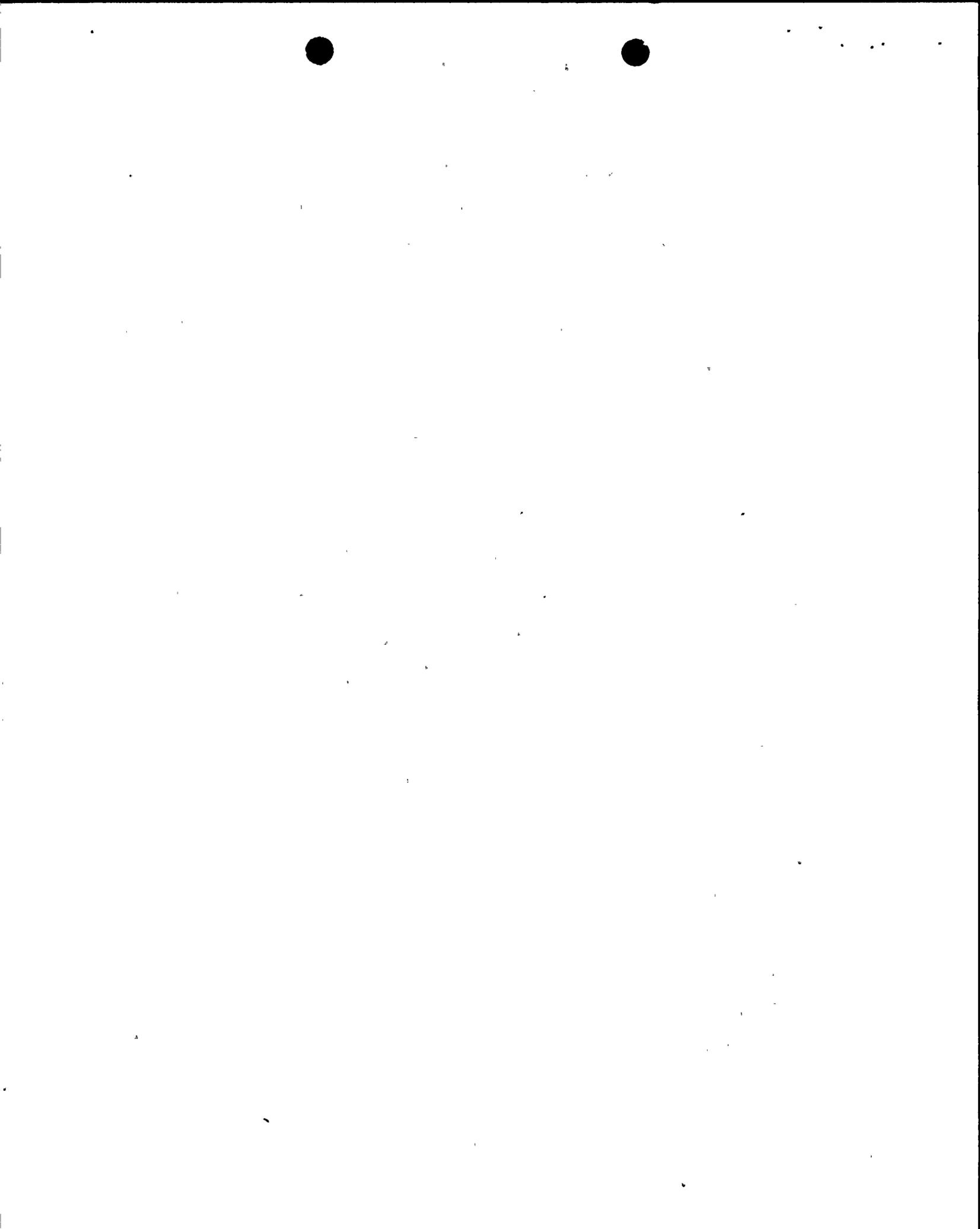
STANLEY H. MENDES
STRUCTURAL ENGINEER

-2-

March 23, 1976

demonstrated to all knowledgeable persons that there is still much to be learned before we can construct totally earthquake-proof facilities. There is still plenty of room for human and technical errors in the various disciplines needed to construct nuclear power facilities. I seriously doubt that the State of the Art is sufficiently advanced to produce the relatively risk-free facilities to which the people of California are entitled. The people should know the truth and be able to influence their destinies with respect to the use of nuclear power. The serious questions which can be raised about the adequacy of existing and proposed new plants should be discussed openly and candidly in public.

As a licensed Civil and Structural Engineer in California, my entire professional career of nearly thirty years has been devoted to the design of buildings and related structures to withstand the effects of damaging earthquakes. I am quite familiar with earthquake resistant design and have personally inspected and studied numerous earthquake-damaged structures. I know most of the strengths and weaknesses of my profession. Experiences during the past few years have given me some insight as to how the Nuclear Regulatory Commission really functions. Frankly speaking, their system scares the hell out of me. Here's how Big Brother really operates!

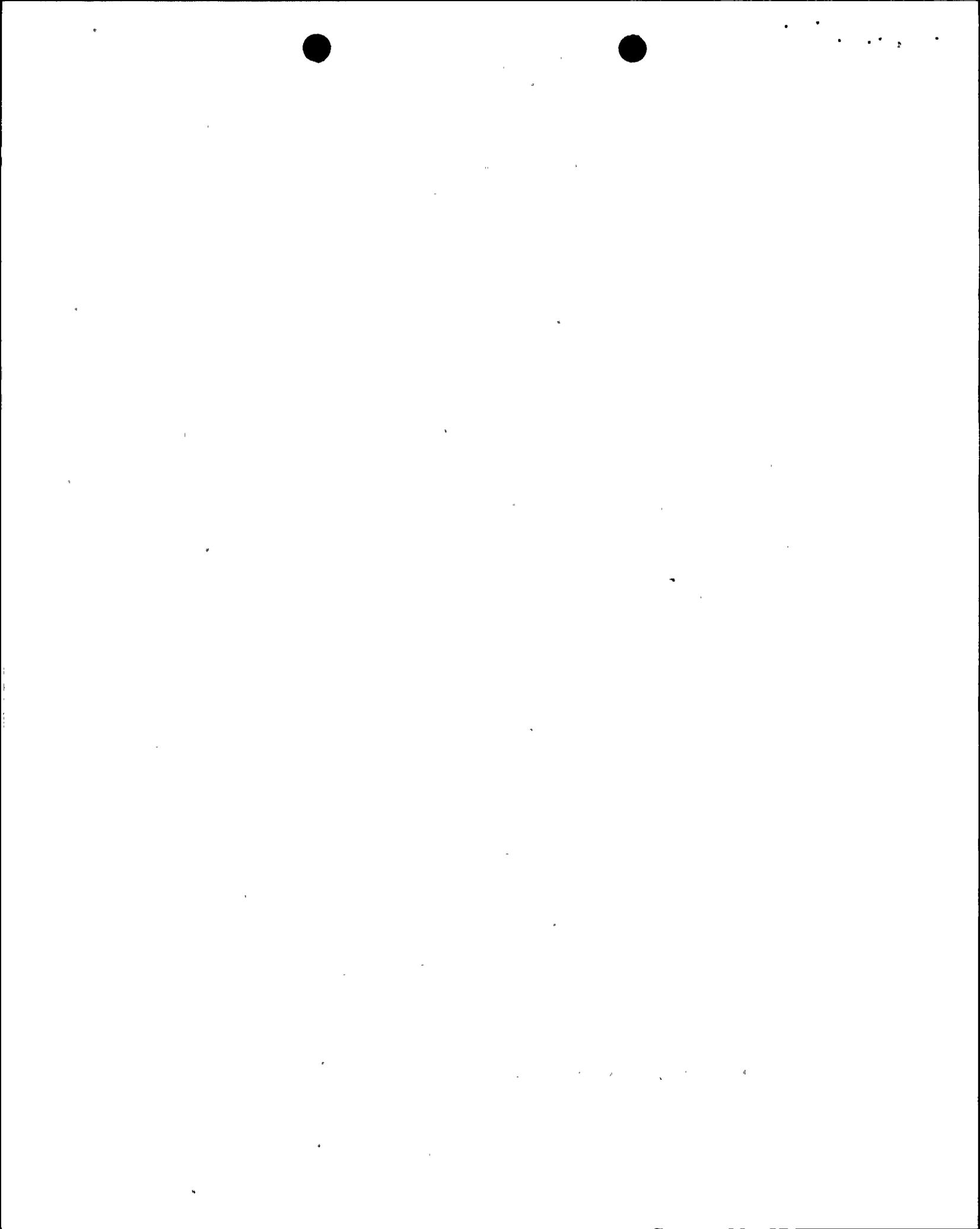


March 23, 1976

1. In the language of our times, I have personally witnessed the AEC engage in "coverup" activities and abuse their lawful powers in "stonewalling" attempts to exclude probable adverse testimony about the earthquake safety of nuclear plants. This was done in concert with Pacific Gas and Electric Company at the Diablo Canyon Nuclear Power Facilities near San Luis Obispo.

The AEC and Pacific Gas and Electric Company have continued to construct the Diablo Nuclear Power Plant facilities for the last five years with full knowledge that the basic design criteria for the earthquake safety provisions of the facilities are incorrect. Why?

- 2.a) Public school buildings and hospitals receive greater in-depth, independent reviews of their earthquake safety provisions than do nuclear power plants constructed in California. Why?
- b) No in-depth detailed reviews of earthquake safety provisions are made by NRC of design calculations and construction drawings to determine if errors have been made. Why not?
- c) No in-depth detailed reviews were made by qualified staff of PG&E of the basic earthquake design criteria for the Diablo Nuclear Power Plant facilities. Why not?



March 23, 1976

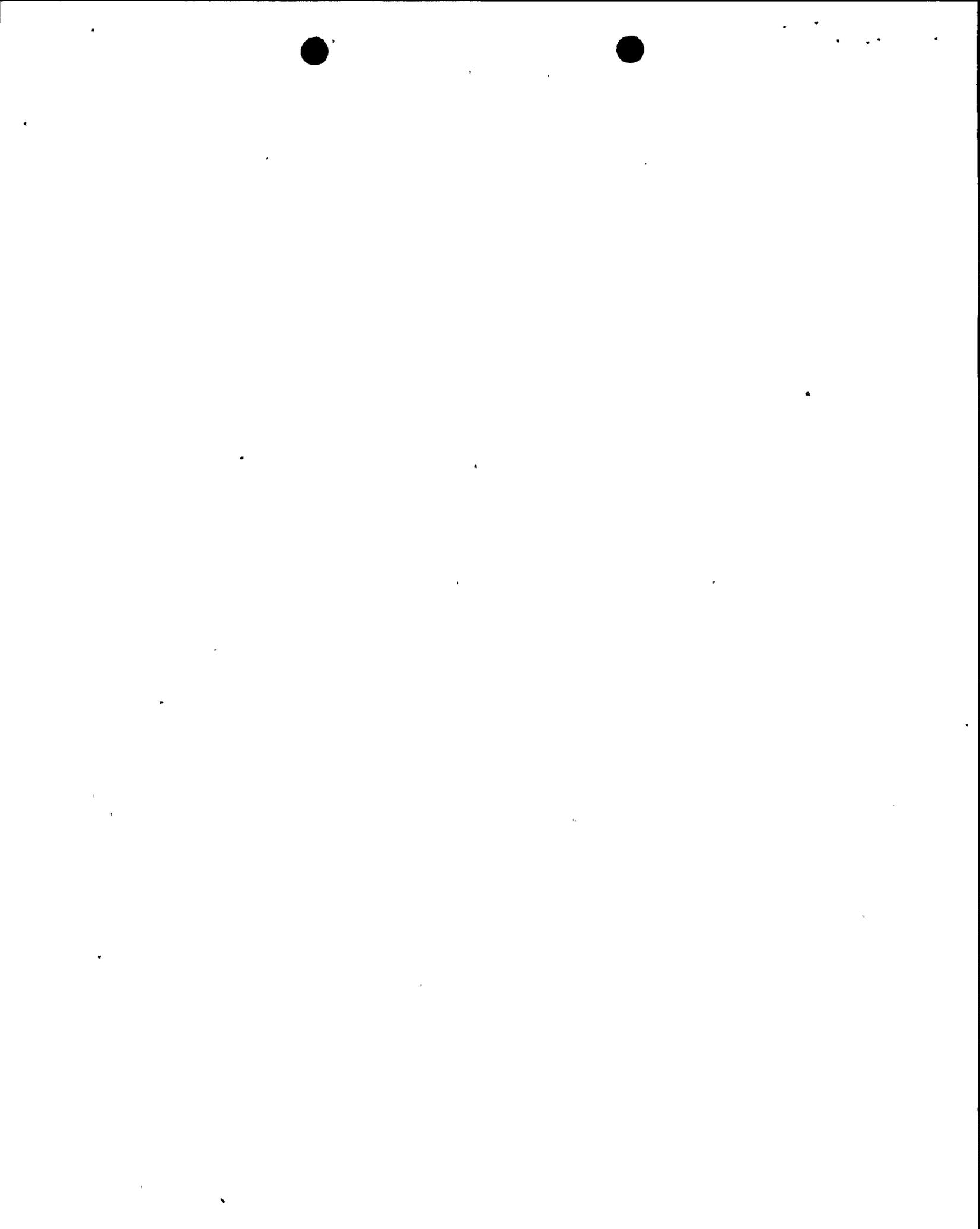
3. Citizen participation in so-called public hearings is permitted at such times as is convenient for the NRC and the utility company constructing the nuclear facilities. These hearings are charades which exclude meaningful citizen participation.
4. The NRC conducts advocate type proceedings, including "discovery" procedures, in a semi-judicial atmosphere which by its very nature is not really conducive to determining scientific or technical truths. Open and candid discussion conducted in public among informed persons is the best way to determine scientific truth. This method also permits lay persons to better understand the limitations of the State of the Art.
5. The present State of the Art in the fields of geology, soils engineering, seismology and various engineering specialties is such that substantial human and technical errors are possible and not at all unusual. NRC procedures oftentimes belatedly discover substantial errors.
6. Nuclear power plants constructed as little as fifteen years ago, in accordance with knowledge then available, very possibly will not provide the necessary earthquake safety features which are required today. What is being done to review and update existing facilities?

In the interest of public health, safety, and welfare, I ask this committee to seek the truth, to continue to investigate



March 23, 1976

and determine how the present system of safety regulation of nuclear power plants really works, to determine what inadequacies exist and to attempt to remedy the situation. The Nuclear Initiative is a giant step in the solution to a tremendous problem.

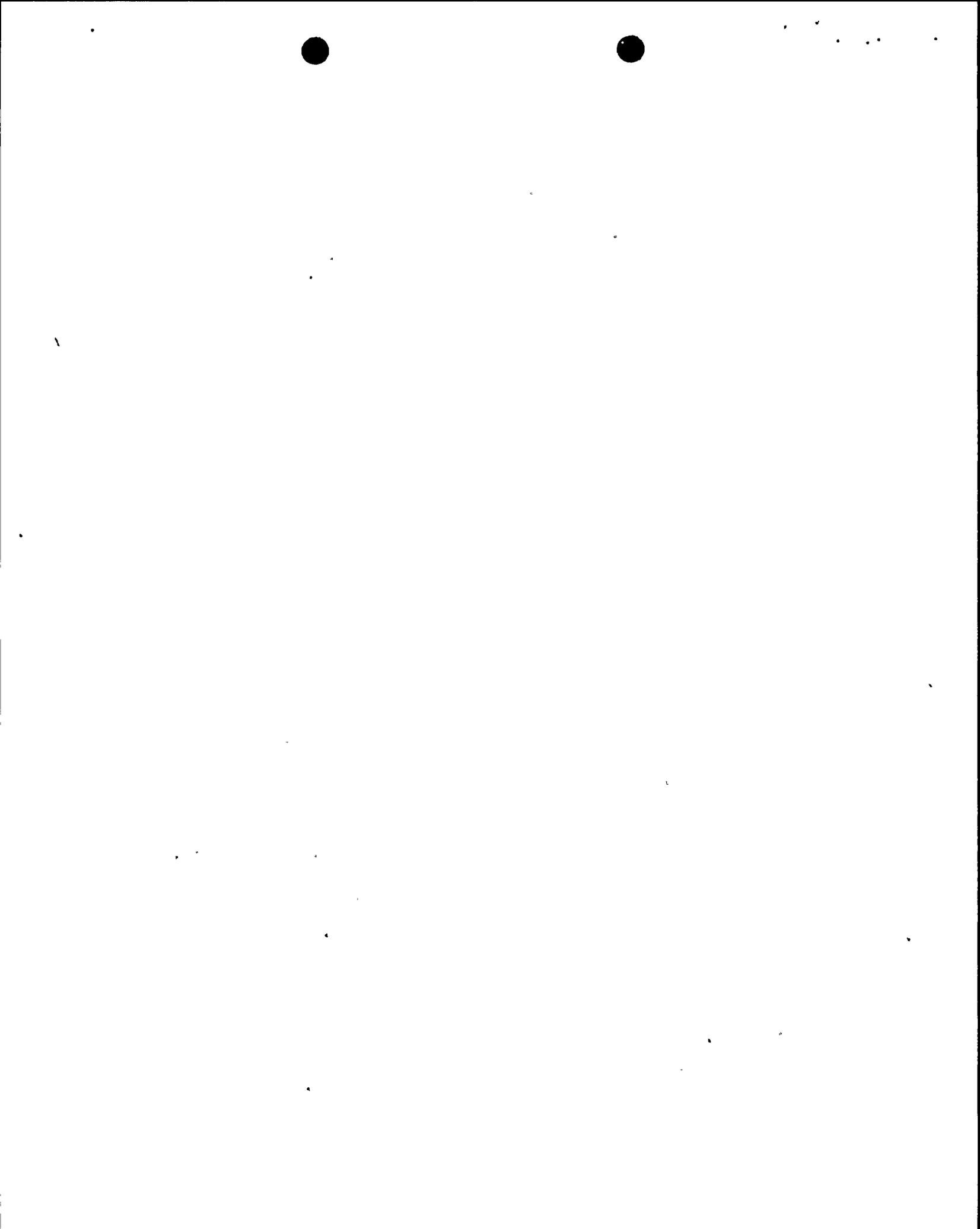


DISCUSSION

My discussion will be structured so as to give background information and reasons for my six (6) previous statements.

1. Nearly five years ago, several attempts were made to reopen AEC hearings on the Diablo Canyon facilities based upon new information available immediately after the San Fernando earthquake of 1971. I was consultant to Scenic Shoreline Preservation, Inc., a recognized intervenor in the hearings. The AEC legal staff and Pacific Gas & Electric Company legal staff prepared briefs which said, in effect, "there's nothing new to be learned from the San Fernando earthquake" and "we used the best and latest techniques of analysis and design; therefore, there's nothing to worry about." This was all "attorney talk" unsubstantiated by the licensed Civil Engineers responsible for the design of the Diablo Nuclear Power facilities. On the basis of these representations, the Atomic Energy Commission refused to reopen the public hearings for new testimony or to permit additional cross examination of the designers of the facilities. Why?

At that time, knowledgeable geologists, seismologists



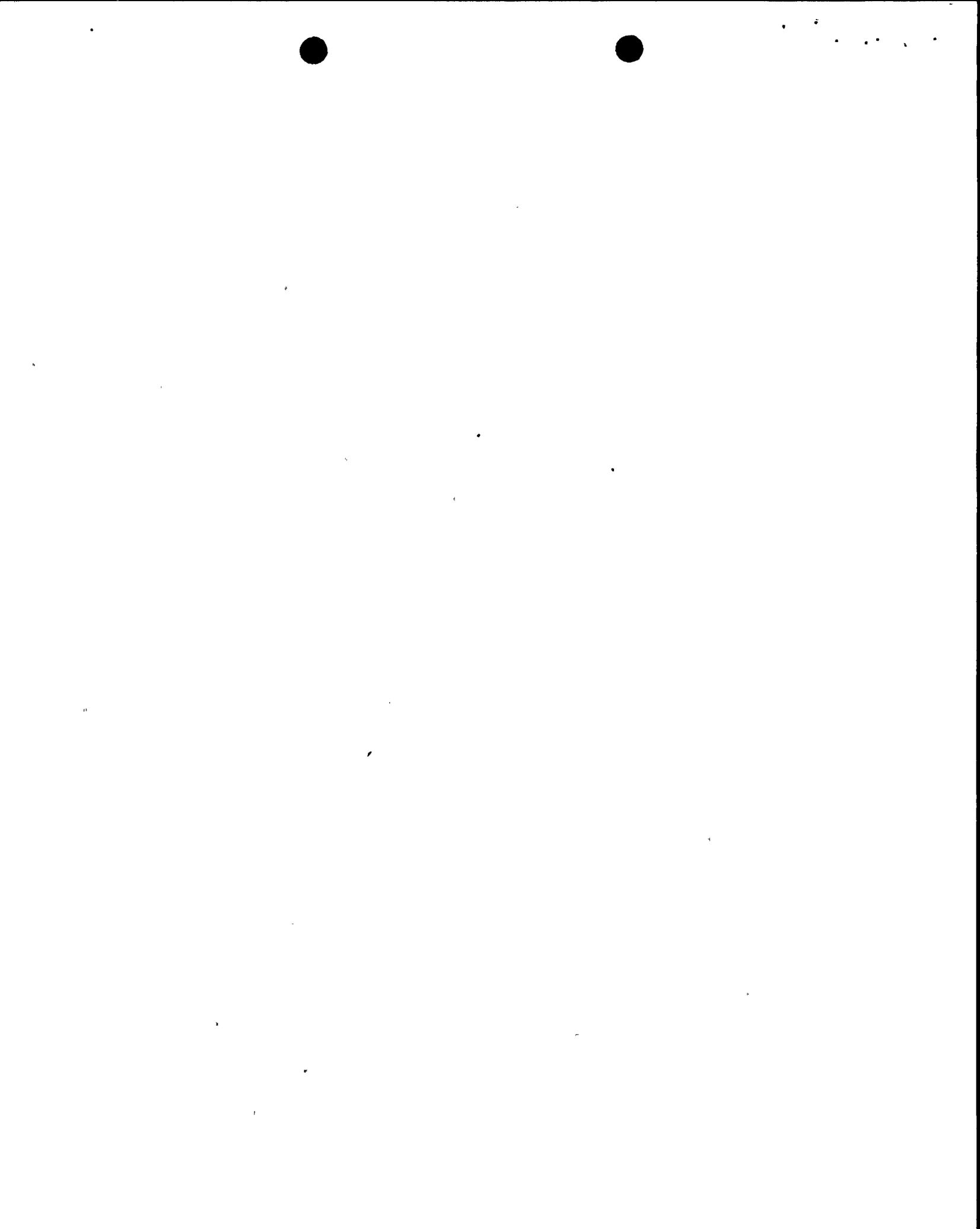
March 23, 1976

and engineers knew full well that the San Fernando events clearly demonstrated the incorrectness of many of the basic criteria and assumptions commonly made in earthquake resistant design. It was a whole new ball game!

An attempt was later made in 1972 to introduce my testimony. At that time, public hearings were held to determine whether construction should be allowed to continue pending preparation of the Environmental Impact Report. By specific Order of the Atomic Energy Commission, I was precluded from testifying. Why?

After the draft Environmental Impact Report was prepared, public hearings were held for comments. Even though the EIR included specific sections on geology, seismology, and earthquake design, I was not permitted to testify. Again, this was by specific Order of the AEC. Why?

I believe I was improperly and illegally excluded from giving testimony and participating in cross examination of the designers of the Diablo facilities because PG&E and AEC knew that the basic earthquake design criteria for the facilities was incorrect and they feared public exposure of the fact. These tactics bought them time to analyze and learn from the San Fernando experience and perhaps to determine on what basis the facilities as



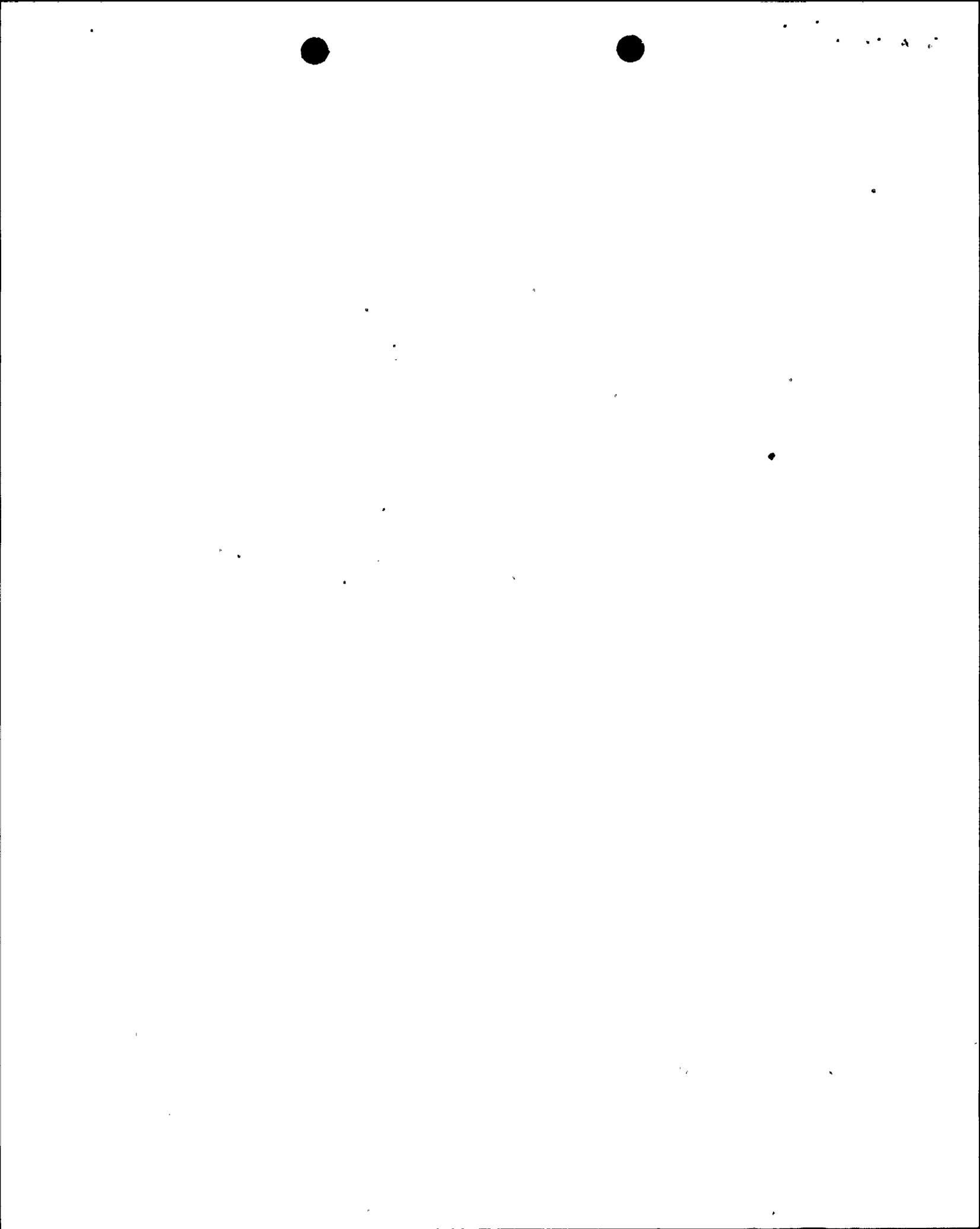
March 23, 1976

constructed might be accepted.

An investigation on the part of this committee will determine that even now, formal and informal discussions are taking place between PG&E and the NRC regarding adequacy of the basic earthquake design criteria for the facilities. The design is questionable because a previously unrecognized major active earthquake fault was discovered about 1972 only three miles offshore. In addition, the San Fernando earthquake of 1971 proved conclusively that ground (rock) accelerations more than three times that for which the plant was designed are possible.

During the past five years, the construction of the Diablo facilities has gone full speed ahead. The tactics of PG&E and the AEC were quite obvious; get the facilities constructed so it will be much more difficult to deny an operating permit when one billion dollars have been invested. Big money talks!

In an affidavit prepared in 1972, dated January 23, 1973, for the Diablo Canyon public hearings, I stated, based upon my investigations, "I doubt that sufficiently detailed physical explorations of the offshore fault systems have been made." This has since been proven true. Also, the basic earthquake design criteria included "--maximum rock accelerations at the site are estimated to be: -- --



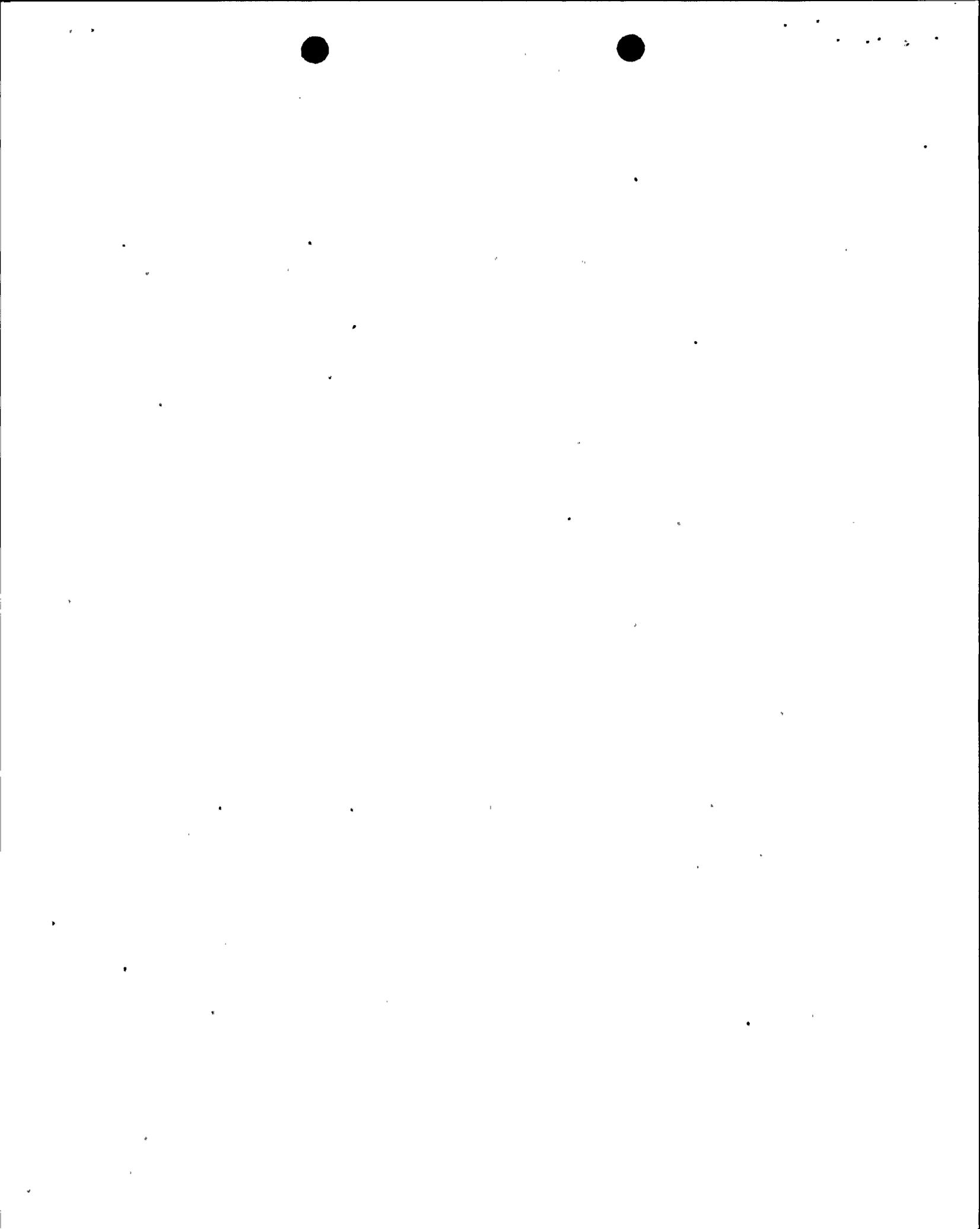
March 23, 1976

Earthquake D . . . 0.20g." My comment was,

"Again, an extremely important element related to design involves a matter of assumption and judgment and does not reflect the accelerograph record of Pacoima Dam. That accelerograph record shows numerous peaks between 0.50g and 0.70g. This record indicates considerably higher accelerations and for a much longer period of time than the above estimates. These higher accelerations occurred over a period of time of 3 to 4 times longer than the Golden Gate Park, San Francisco, 1957 record which was utilized to design for Earthquake D."

Only in January of this year has the NRC asked for justification of design based upon ground accelerations of in excess of 0.50G. This comes rather late in the game, because the operating license hearings are scheduled for June of this year. It appears that for construction to have been allowed to continue to completion, the PG&E and the NRC must have already reached a mutually agreeable understanding.

If by chance the Diablo Canyon facilities are not given an operating permit by the NRC, what will happen to the one billion dollar investment of PG&E? It is my understanding, based upon present Public Utilities Commission



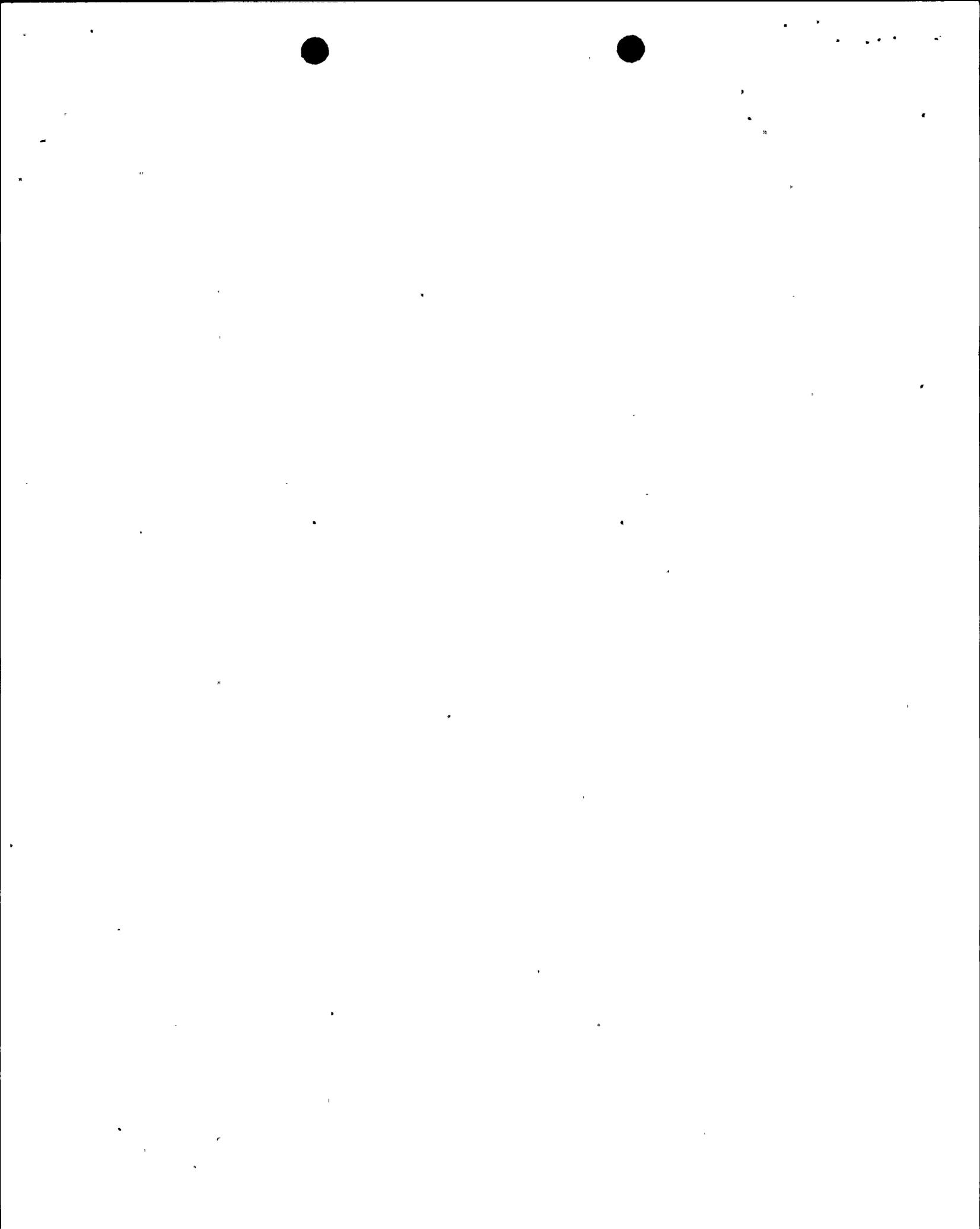
March 23, 1976

policy that the investment is risk capital and may not be charged to utility customers by way of rate increases.

It is my sincere hope that the present NRC proceedings questioning the earthquake safety features of the Diablo Canyon facilities are honest and forthright so as to ultimately reveal the truth. Not being privileged to sit in on the "informal" discussions between PG&E and NRC, I just don't know.

2.a,b,c) Detailed independent reviews are made by the State Office of Architecture & Construction for all public school buildings and hospitals which are to be constructed in California. These reviews include a check of criteria, method, and procedures. They also make a detailed check of the results of the design, including verifying that plans correctly and completely agree with design assumptions and results. In addition, independent field inspections are made to assure compliance with approved plans and specifications.

The Office of Architecture and Construction procedures contrast greatly with the NRC procedures. The NRC does not make a detailed check of analysis, design calculations and construction plans. They only "--check criteria, method and procedures." On February 18, 1975 at San

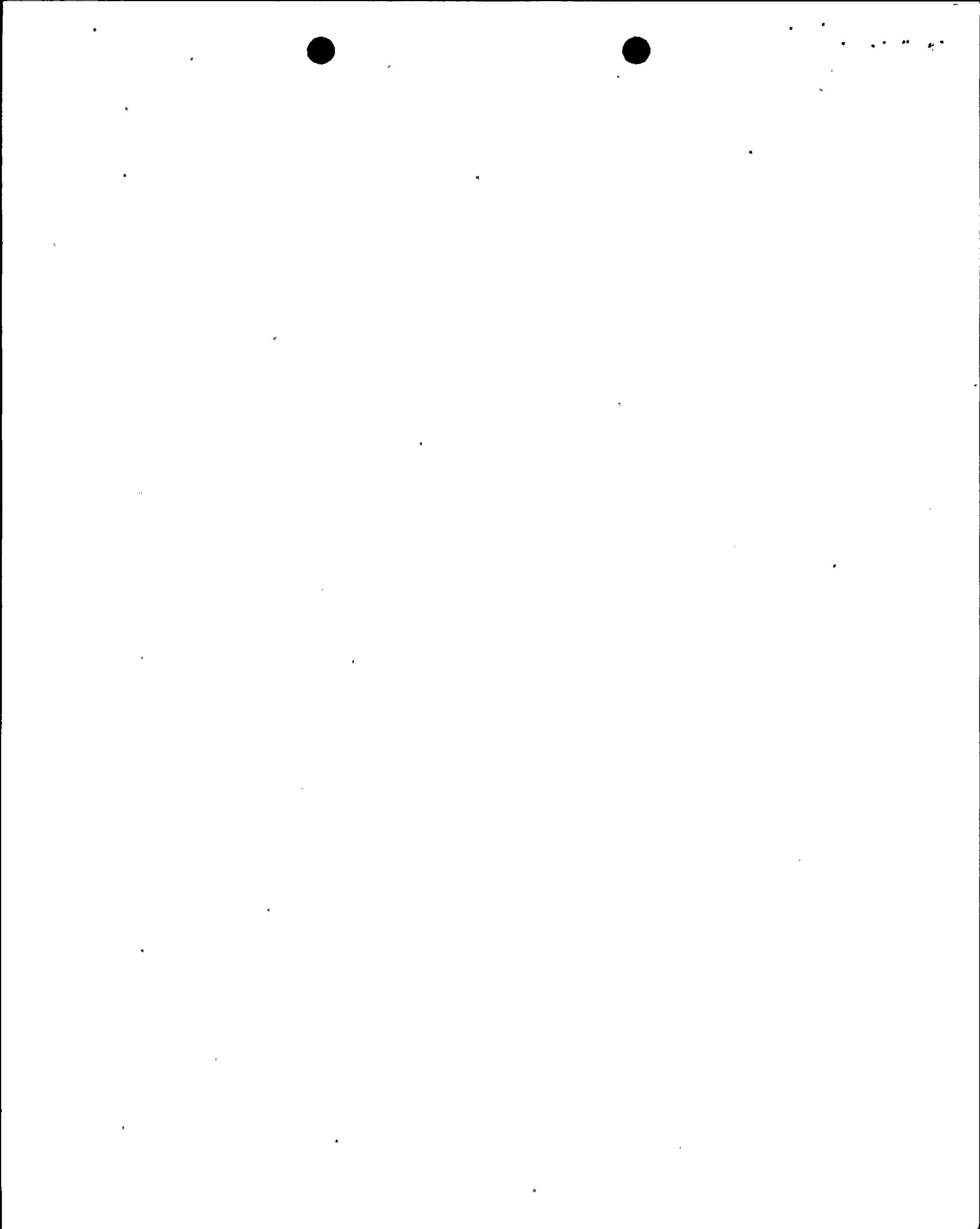


March 23, 1976

Luis Obispo, California, Mr. Larry Shaw, of the Structural Engineering staff of NRC made the following statements when asked by a commission member of the Advisory Commission on Reactor Safeguards about the checking procedures of the Diablo Canyon nuclear power plant design:

"We don't check detailed results. We only check criteria, method, and procedures. Do you know how long it would take to check a detailed analysis? It would take about four or five years." -- -- "In order to check detailed answers, I would need a staff of a thousand people to do that."

From such a procedure, it is clear and apparent to experienced engineers that human errors and mistakes will have to all be discovered by the designers of nuclear facilities. Let's have a close look at how PG&E designers of the Diablo Canyon facilities made an in house check. The seismological evaluation of the Diablo Canyon site is contained in the Preliminary Safety Analysis Report (PSAR) and set forth in reports dated January 9, 1967, and May 28, 1968. There are no significant differences in the Final SAR (FSAR) published only a couple of years ago. Under date of July 18, 1975, representatives of PG&E responded as follows, under penalty of perjury, to several significant questions contained in Interrogatories by San Luis Obispo Mothers for Peace dated June 19, 1975.



March 23, 1976

- "37. Name the person or persons responsible for the review of the "Seismic Evaluation of the Diablo Canyon Site" prepared by Hugo Benioff and transmitted to Mr. Gordon V. Richards under dates of January 9, 1967, and May 28, 1968.

Response

This document was submitted in connection with PGandE's applications for construction permits for the two Diablo Units. It was reviewed by PGandE personnel, AEC Staff personnel, the Advisory Committee on Reactor Safeguards, the Atomic Safety and Licensing Boards, and various consultants to each. PGandE is unable to name specific individuals responsible for this review."

- "38. State the nature and extent of the review which was made, including the number of man hours spent by each person or persons involved in the review referred to in question No. 37.

Response

PGandE does not have records of the time spent by its personnel in reviewing reports of its consultants and obviously does not have that information for members of other organizations."

- "39. Name the person or persons responsible for the review of the "Recommended Earthquake Design Criteria for the Nuclear Power Plant -- Unit 2, Diablo Canyon Site" transmitted to Mr. Gordon Richards from John



March 23, 1976

Blume and Associates, Engineers, under date of June 24, 1968. Said report is dated June 1968.

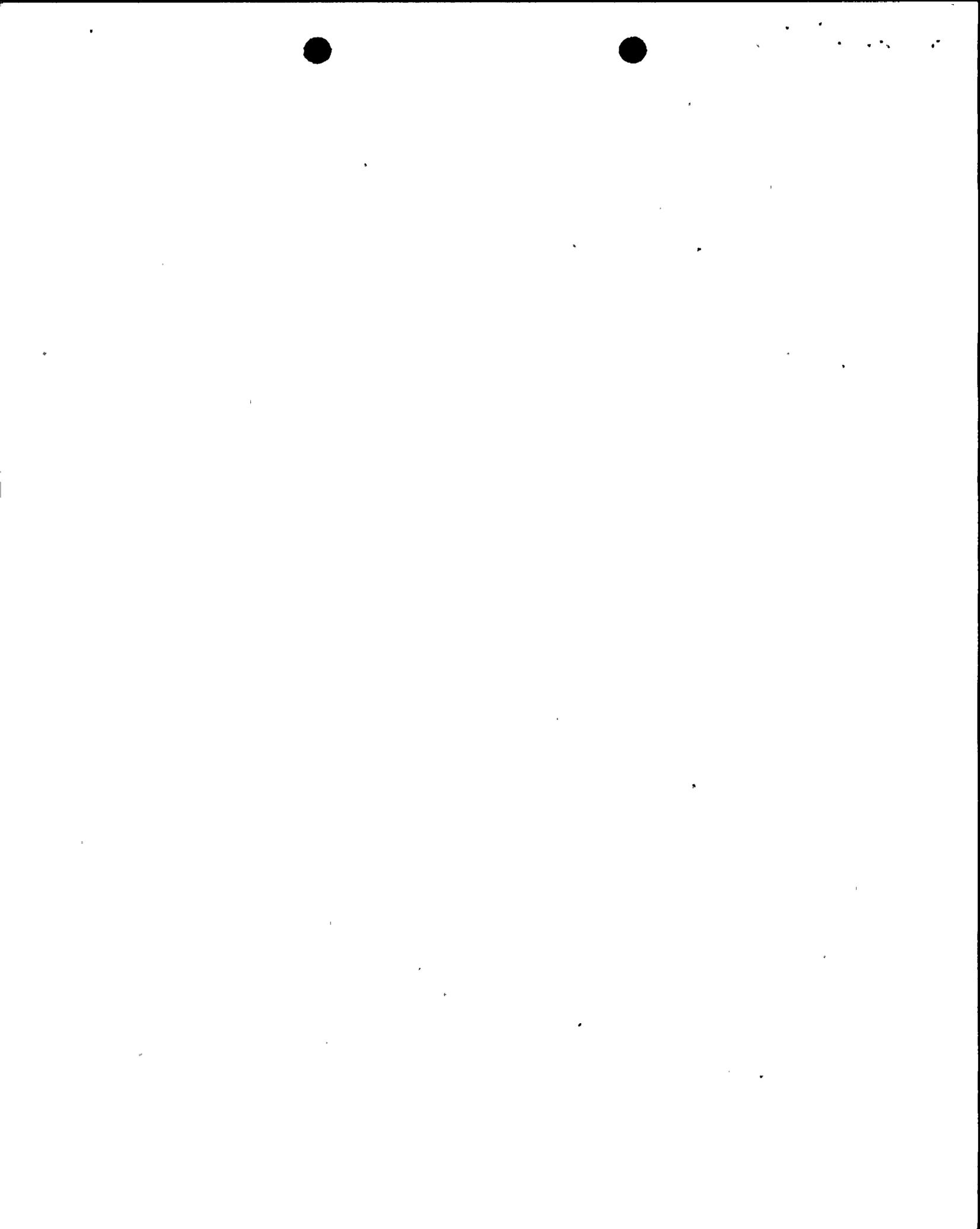
Response

See response to Interrogatory 37."

The significance of the responses are tremendous. PG&E can't name one single person on their staff who reviewed the basic earthquake design criteria for the Diablo facilities. Certainly the criteria is important enough to have it reviewed by the best qualified persons on PG&E's staff! Yet no one knows who reviewed it nor how much time they spent reviewing it. I honestly question if it was reviewed at all.

One main point I wish to make is that if the basic earthquake design criteria are incorrect, then it logically follows that the earthquake safety provisions of the facilities are likely to be inadequate. One can be reasonably sure that the plant was not materially "overdesigned" -- not with PG&E's money at stake.

3. As previously set forth in the discussion of item No. 1, I have on three separate occasions been excluded from giving testimony at public hearings by specific Order of the AEC. Indications are that I probably will be permitted to testify at the June 1976 licensing hearings. This comes



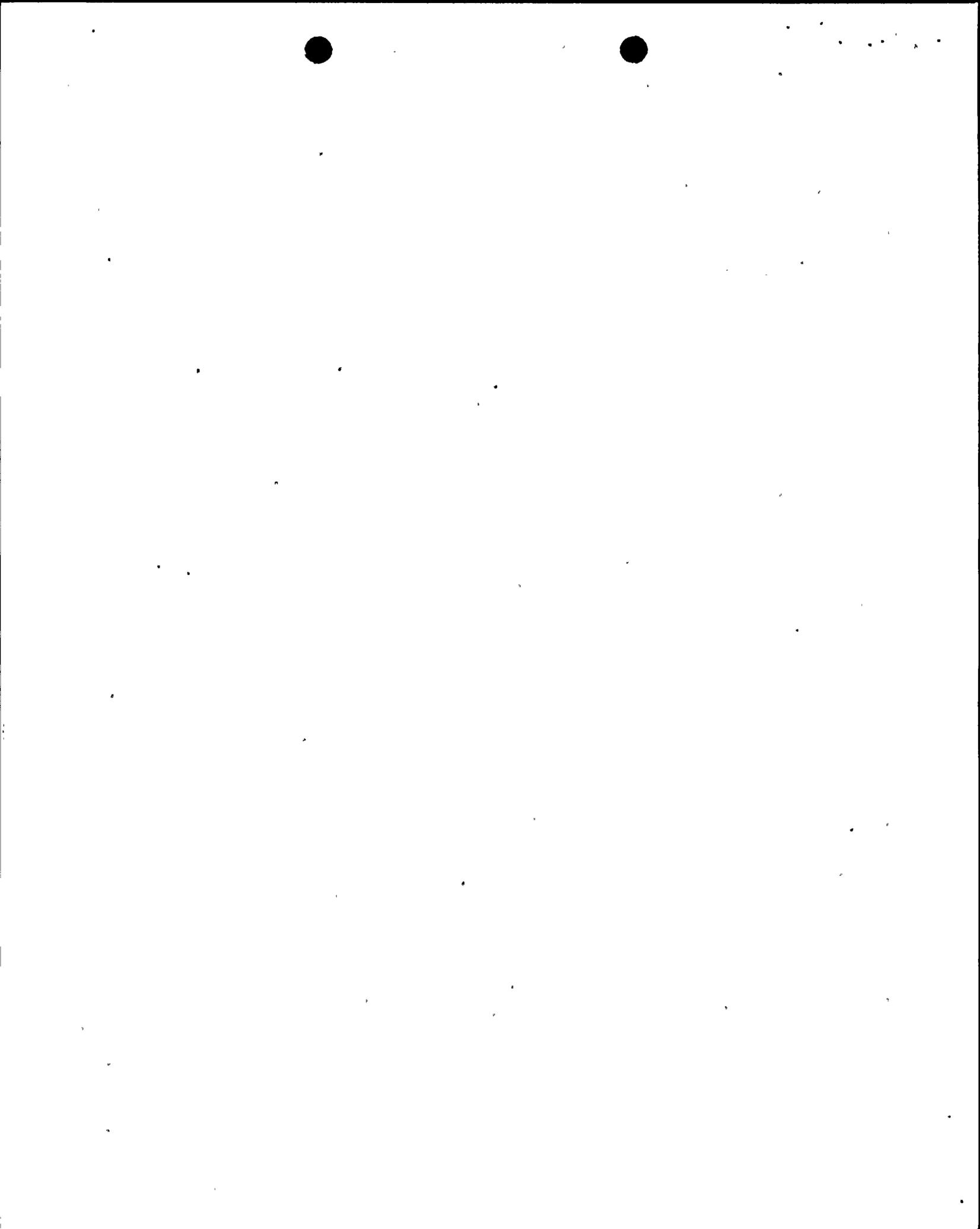
March 23, 1976

a bit late! It will be a cold day in hell before I will dignify those hearings by participating.

4. The primary aim of advocate type proceedings is to sway a third party to a particular point of view. In the process, facts detrimental to a point of view are almost never brought to light, except by the opposition. One does not harm one's own case! The name of the game is win --- winning is everything.

In contrast to advocate type proceedings are those normally followed by scientifically trained persons. Here, a premise is set forth and examined for merit. The pros and cons are discussed by all parties. Facts become facts when they are mutually accepted. The entire purpose is to determine the truth -- not to win. How vastly different are the statements made by "experts" when they are part of a round table discussion among colleagues as compared to "expert testimony" during advocate type proceedings.

5. Practicing professionals in the fields of geology, soils engineering, seismology and various engineering specialties will inform you, if asked, of personal experiences wherein substantial errors have been made. Don't expect many of these persons to volunteer to come before you and furnish



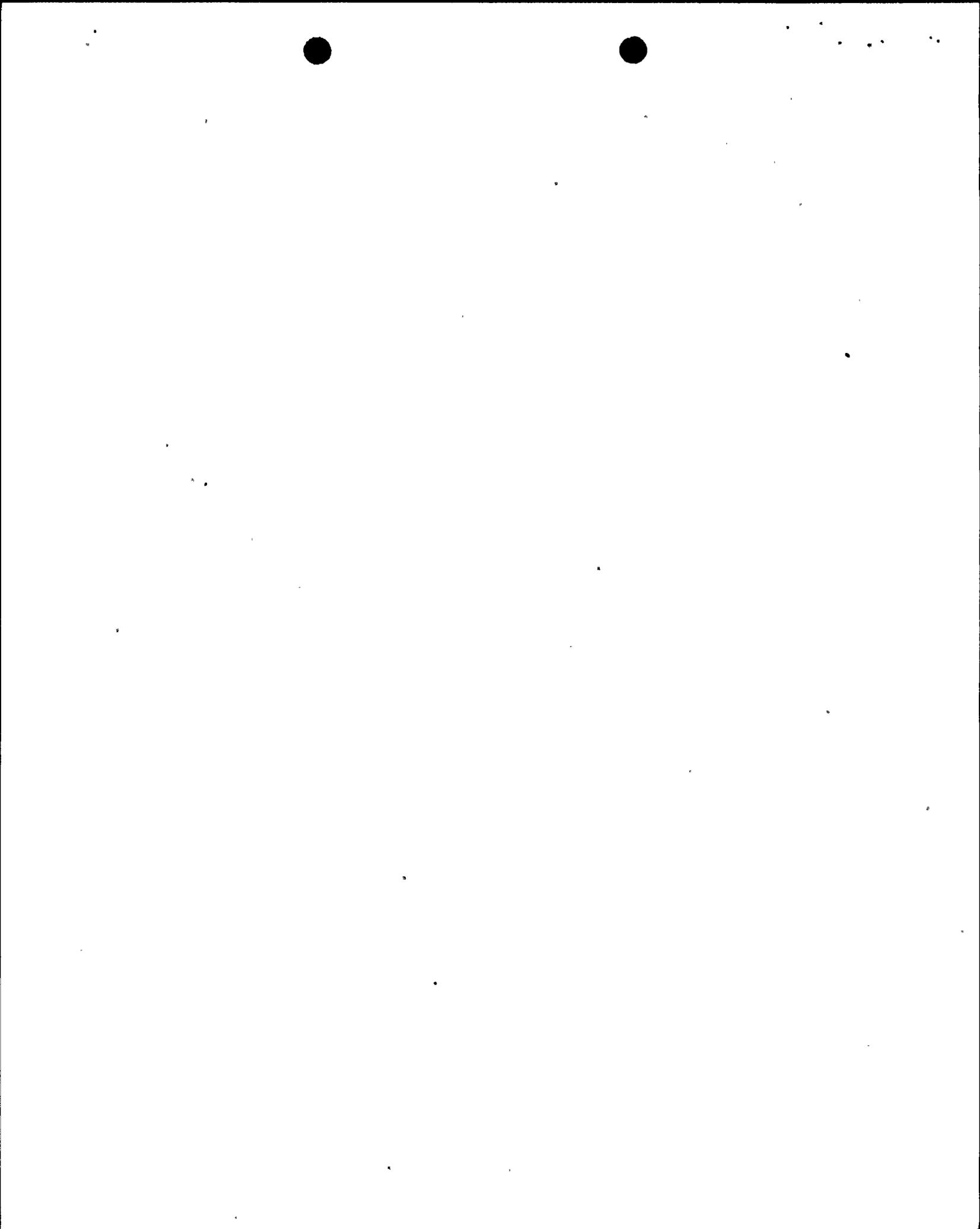
March 23, 1976

such information. Errors and omissions are usually reserved for discussion in private committees and conferences, but not before a Senate committee -- unless asked, that is.

How adequate are NRC procedures which allowed the Diablo Canyon facilities to become over one-half constructed before discovery of an active offshore fault capable of generating a Magnitude 7.5 earthquake with ground accelerations on the order of 0.70G to 0.80G?

What if the San Fernando earthquake of 1971 hadn't happened? We would be sitting here in ignorant bliss believing that maximum ground accelerations would never likely exceed 0.50G. The Pacoima Dam record produced peak accelerations of 1.25G!

6. I don't believe any knowledgeable person would be so foolish as to say that the professions haven't learned a great deal about earthquake resistant design during the past fifteen years. There has been an explosion of knowledge which is still going on. Most earthquake design concepts are based upon assumptions, many of which have yet to be proven by performance during damaging earthquakes. Only during damaging earthquakes do we get a clearer picture of the adequacy of our design procedures.



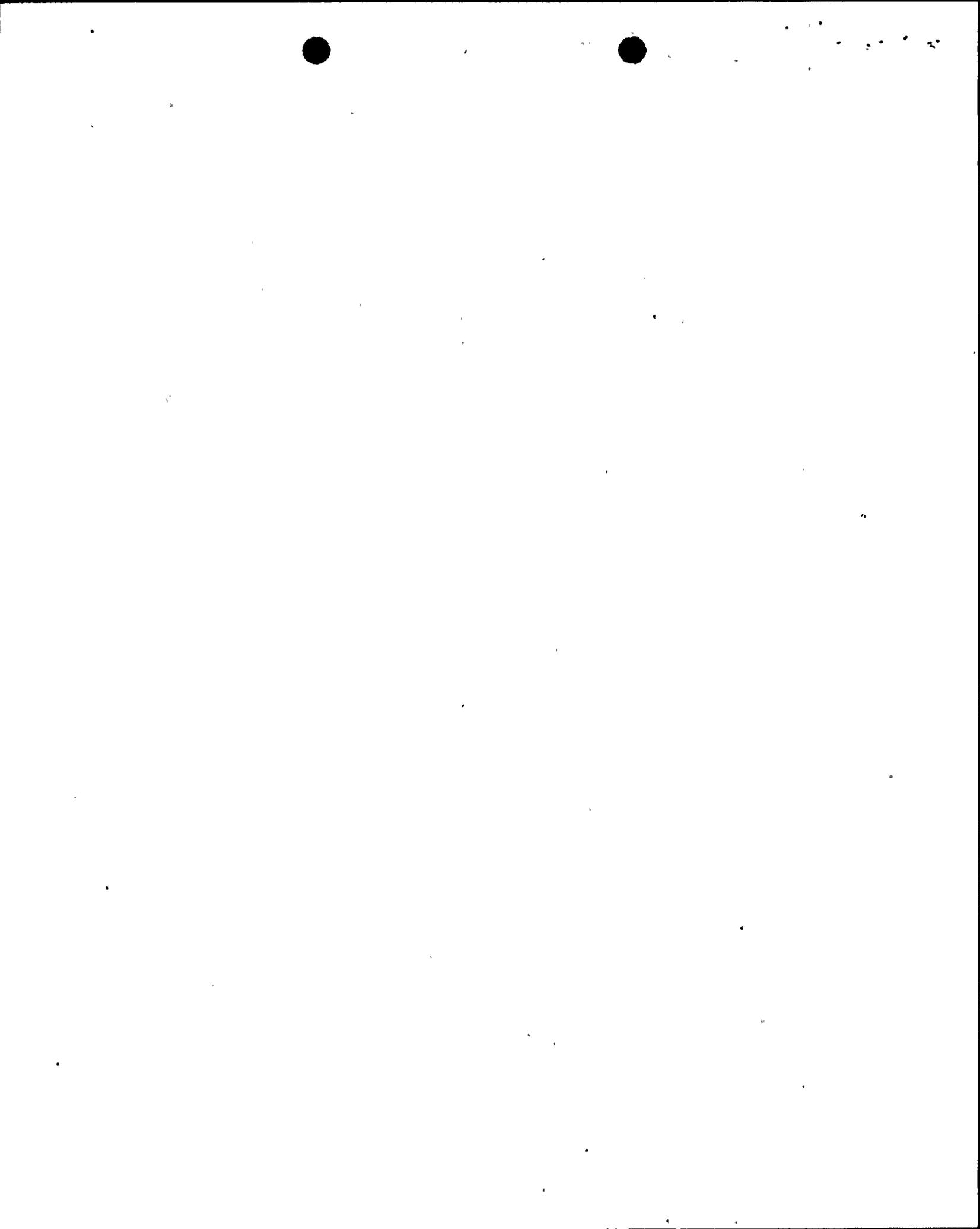
STANLEY H. MENDES
STRUCTURAL ENGINEER

-16-

March 23, 1976

It is fair to say that the San Fernando earthquake of 1971 clearly showed there is one hell of a lot to be learned.

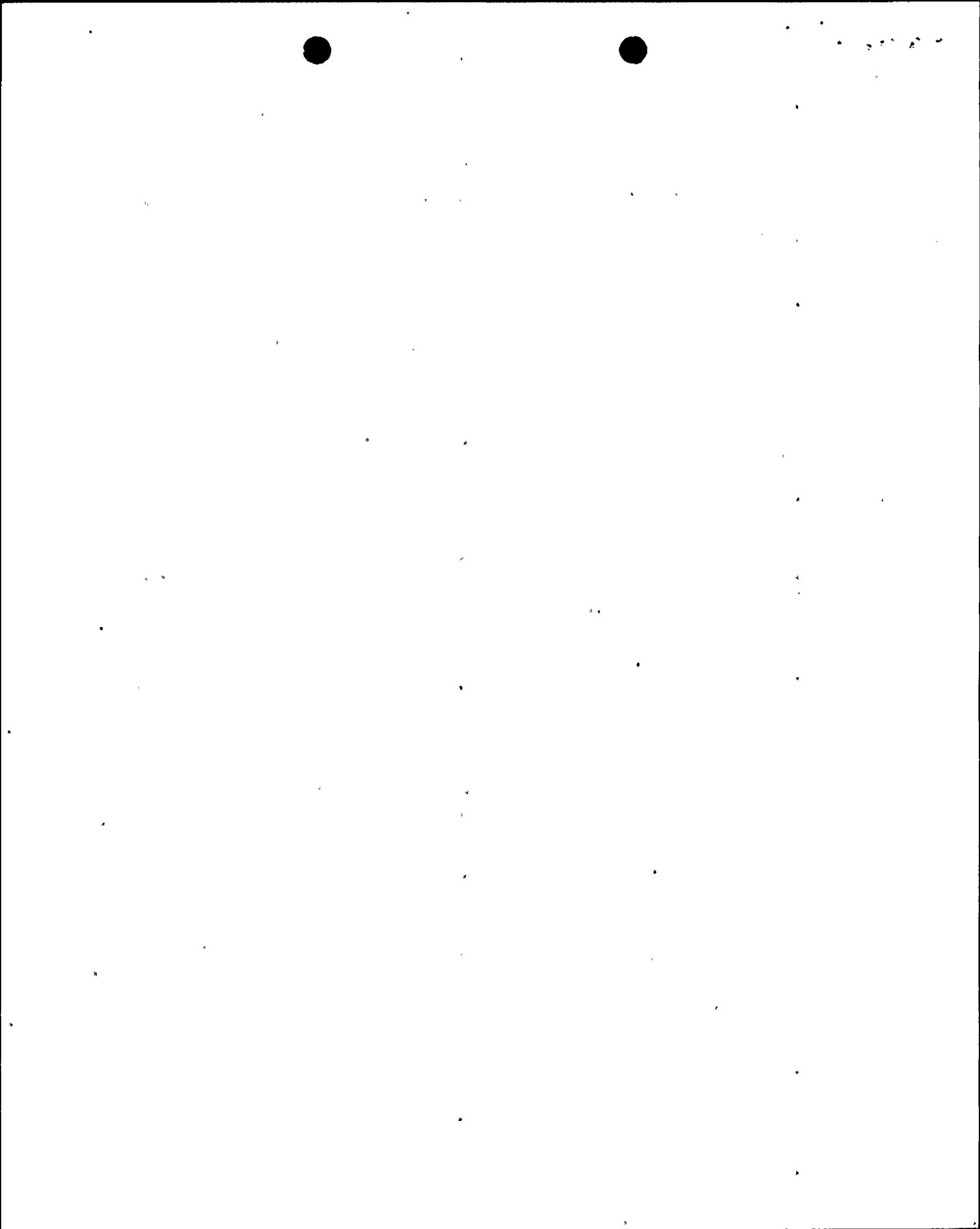
While much attention since then has been focused on the well-known hazard of older unreinforced masonry buildings, what has the NRC done to review and update the earthquake safety provisions of older nuclear power facilities? This is a problem that I'm certain the NRC would not wish to have exposed publicly, but it is one which they should face up to as soon as possible. This committee should concern itself with the adequacy of existing nuclear facilities in California.



RECOMMENDATIONS

It is recommended:

1. This committee should investigate the Diablo Canyon nuclear power plant proceedings and fully inform the Legislature of your findings regarding their propriety and the degree of confidence you have as to whether proper earthquake safety provisions have been made.
2. The Legislature should take action to assure that an independent review is made of the earthquake safety provisions of nuclear power facilities which presently exist and those which are to be constructed in California in the future.
3. The Legislature should conduct public conferences and public hearings to solicit open and candid discussion among interested and informed persons to determine the following:
 - a) whether the State of the Art is sufficiently advanced in the fields of geology, soils engineering, seismology, and earthquake engineering so as to permit the design and construction of nuclear power facilities without substantial risk to the health, safety, and welfare of the people who live in California.



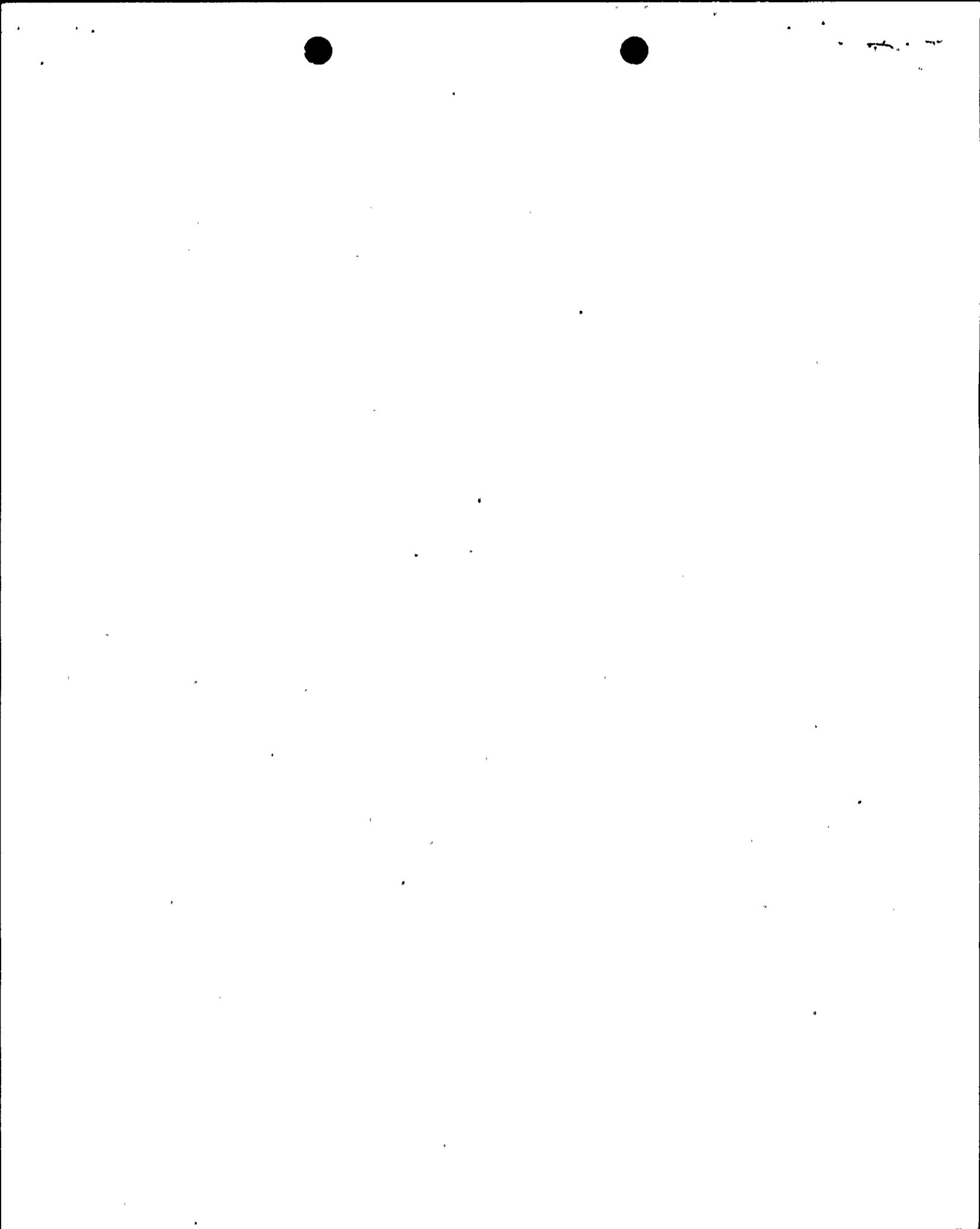
March 23, 1976

- b) the degree of risk which accompanies design and construction of nuclear power facilities which are subjected to the forces and effects of earthquakes.
 - c) the consequences of a nuclear disaster which may accompany natural disasters such as earthquakes.
4. The Legislature should inform the electorate of the findings from the foregoing recommended conferences and hearings and allow them to participate in reaching a decision as to whether and/or under what conditions nuclear power facilities are to be constructed and operated in California. A decision should also be made as to whether and under what conditions existing nuclear power facilities should be continued in use.

Respectfully submitted,

Stanley H. Mendes

Stanley H. Mendes





UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUMMARY OF BRIEFING TO STAFF OF
EDMUND G. BROWN, JR., GOVERNOR OF CALIFORNIA

March 17, 1976

1. Over 4500 square miles of southern California rose 5 to 10 inches since 1961.
2. Destructive earthquakes at San Fernando, California, in 1971, and Niigata, Japan, in 1964, were preceded by land uplifts of less than 5 inches. Uplifts, however, have been observed without subsequent earthquakes.
3. The uplift occurs along the section of the San Andreas fault where a major earthquake ($M > 8$) occurred in 1857 and where another great earthquake is inevitable, possibly within the next decade.

While some evidence can be interpreted as precursory to a major earthquake in this region, there is no basis now for predicting the time it will take place. The sum of the evidence, however, justifies a warning that a great earthquake will take place in this area and also justifies preparedness actions.

4. If an earthquake similar to that in 1857 occurred today in this region about 30 miles north of Los Angeles, the probable losses in Orange and Los Angeles Counties alone are estimated as follows:

40,000 buildings would collapse or be seriously damaged,
3,000 to 12,000 people killed,
12,000 to 48,000 people hospitalized,
\$15 to 25 billion damage.

Failure of one of the larger dams could leave 100,000 homeless and tens of thousands dead.

5. It is possible but less certain that one or more damaging earthquakes may take place within this region prior to a great earthquake.

1 - Mr. Tolson
1 - Mr. Boardman
1 - Mr. Nichols
1 - Mr. Belmont
1 - Mr. Ladd
1 - Mr. Clegg
1 - Mr. Glavin
1 - Mr. Harbo
1 - Mr. Rosen
1 - Mr. Tracy
1 - Mr. Egan
1 - Mr. Gurnea
1 - Mr. Hendon
1 - Mr. Pennington
1 - Mr. Quinn
1 - Mr. Nease
1 - Miss Gandy

6. Studies of the area are underway by the U.S.G.S., the California Division of Mines and Geology, and several universities. Some additional instruments have been installed and new funds of \$2.1M are to be provided in the FY77 budget. Hopefully a predictive capability will be developed in advance of the earthquake, but emergency plans should be developed on the assumption that there will be no advance notice.
7. If data become available supporting a prediction in California, the evidence will be evaluated by the U.S.G.S. and transmitted to the Governor.

