

Docket Nos. 50-275  
and 50-323

MAR. 18 1976

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Ms. Judith Rankin  
251 North Chester  
Pasadena, California 91101

Dear Ms. Rankin:

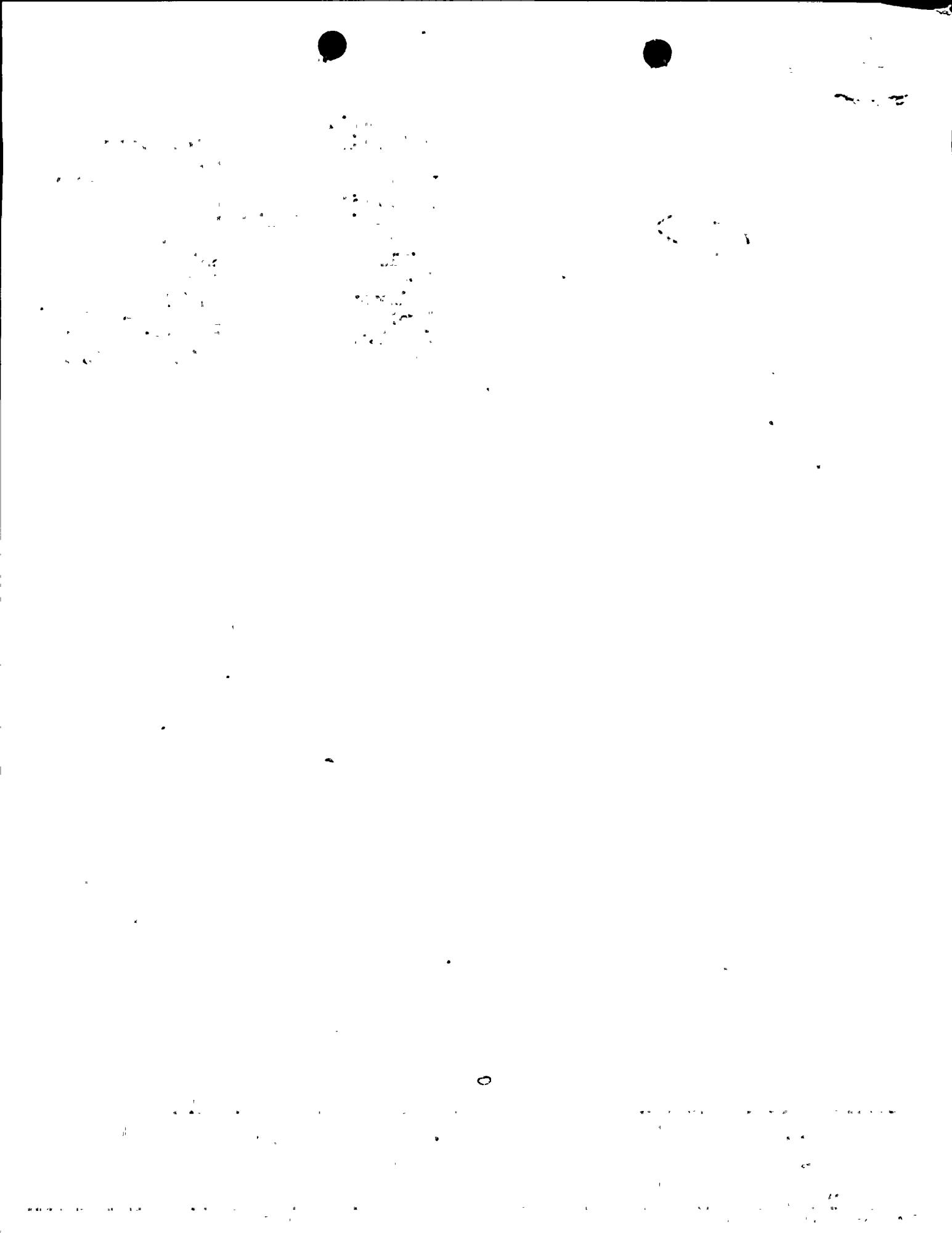
Your letter of February 16, 1976 to the President has been referred to me for reply and I am pleased to provide the following response.

You expressed concern about whether the Diablo Canyon Nuclear Power Plant near San Luis Obispo, California can withstand earthquakes. With regard to the fault you mentioned, which is about 3 1/2 miles from the plant, I can assure you that we will not authorize operation of the plant until we have thoroughly evaluated the possible effects of the fault and any actions which may be necessary to ensure an adequate level of safety have been taken. This evaluation is now in progress and a more detailed description is provided in the enclosure.

With regard to your question about testing nuclear power plants for earthquakes, it is true that the large components cannot be tested for earthquakes. Therefore, conservative design procedures are used to design for severe earthquakes and a strict quality assurance program is employed in design, construction and materials. For smaller components, such as motors, instruments and pumps, testing is performed by shaking the components to verify that they will continue to work during and after an earthquake. In addition, the containment structure, which is provided to contain radioactivity in the unlikely event of an accidental release, is periodically tested for leak tightness by pressurizing it to a high pressure with air.

With regard to your question about money, for large commercial nuclear power plants such as you are discussing, the money is provided by the utilities which own the plants and not by the Federal government. The Federal government's expenditures are in the areas of safety research, reactor research and development work. This includes small research reactors. It also includes, in one case, part of the cost of a large power reactor intended to demonstrate the feasibility of commercial breeder reactors.

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Ms. Judith Rankin

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With regard to the copper tubing, this was copper-nickel tubing installed in the condensers. Sea water for cooling flows through this tubing during normal operation. This type of tubing is widely used elsewhere in similar applications and is generally suitable for the purpose. Investigations of the abalone kill indicated that, while the tubing may have been responsible, procedures to keep a small amount of water flowing through the tubes when the plant was not operating would probably prevent any further kills. Nevertheless, Pacific Gas and Electric Company decided to replace the copper-nickel tubes with more expensive titanium tubes. These titanium tubes will not only avoid adverse environmental effects but will give longer life and fewer plant shutdowns to fix tube leaks.

I trust you will find this information responsive to your concerns.

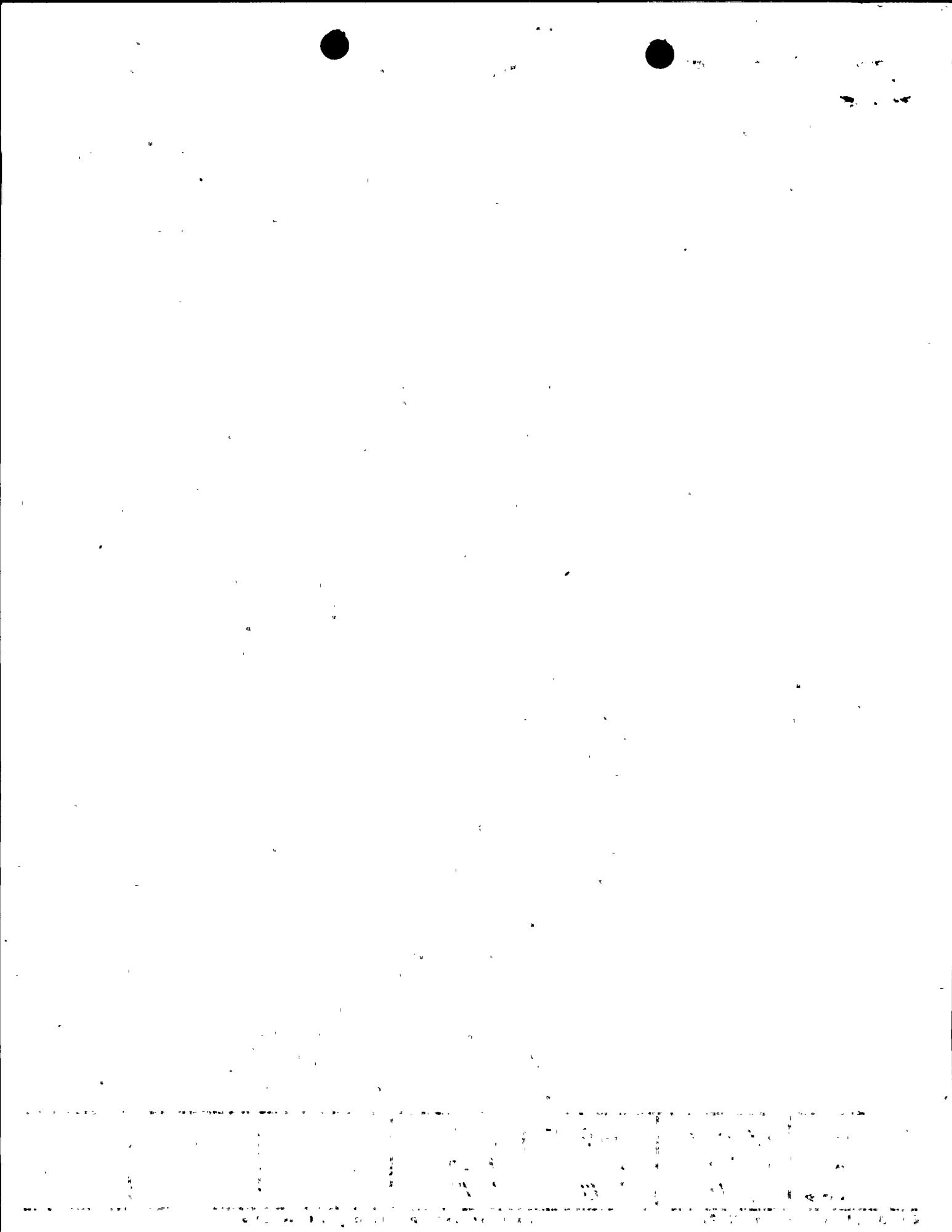
Sincerely,

Original signed by R. C. DeYoung

R. C. DeYoung, Assistant Director  
for Light Water Reactors  
Division of Project Management

Enclosure:  
Diablo Canyon Seismic  
Evaluation

OFFICE>	DPM:LWR #3	DPM:LWR #3	DPM:AD/LWR			
SURNAME>	Dallison:mt	ODParr	RCDeYoung			
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ENCLOSURE

DIABLO CANYON SEISMIC DESIGN EVALUATION

The Diablo Canyon Nuclear Power Plant is located on the Pacific Coast about 12 miles from San Luis Obispo, California. Construction is essentially completed for the first of the two units at this site. The owner, Pacific Gas and Electric Company, applied for an operating license in 1973. The Commission's staff is currently evaluating the operating license application. This evaluation, which is now nearing completion, has been delayed nearly two years by considerations associated with the Hosgri fault.

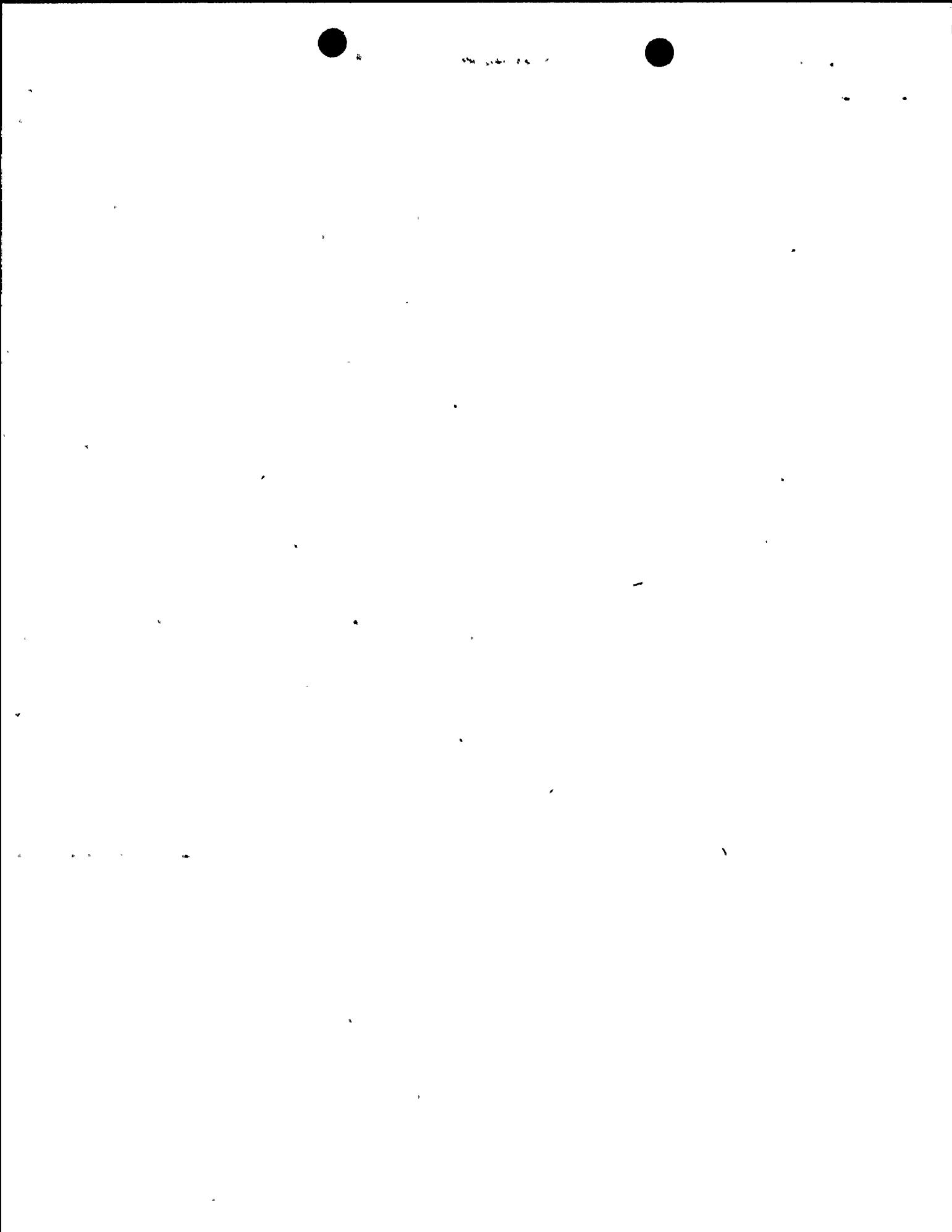
The present situation presents no risk to public safety since the reactors have never operated and do not have operating licenses. New fuel for the reactors is being stored at the plant. The Commission's staff has evaluated this storage and determined that it involves no significant risk to public safety even if the largest of earthquakes should occur.

Before operating licenses can be issued, all actions necessary to demonstrate an acceptable level of safety will be required. Further details concerning the operating license evaluation are presented below.

Construction permits were issued in 1968 and 1970 for Units 1 and 2, respectively, at the Diablo Canyon site. Based on the investigations conducted at that time the plant was designed to withstand the following earthquakes:

- (1) A great earthquake of magnitude 8.5 along the San Andreas fault 48 miles from the plant.
- (2) A major earthquake of magnitude 7.25 along the Nacimiento fault 20 miles from the plant.
- (3) A major earthquake of magnitude 7.5 along the off-shore extension of the Santa Ynez fault 50 miles from the plant.
- (4) An aftershock of magnitude 6.75 not associated with a known fault 6 miles from the plant (directly under the plant at a depth of 6 miles).

After the construction permits were issued, offshore investigations conducted by Shell Oil Company showed the existence of a fault which had previously been unmapped. This is the Hosgri fault which runs

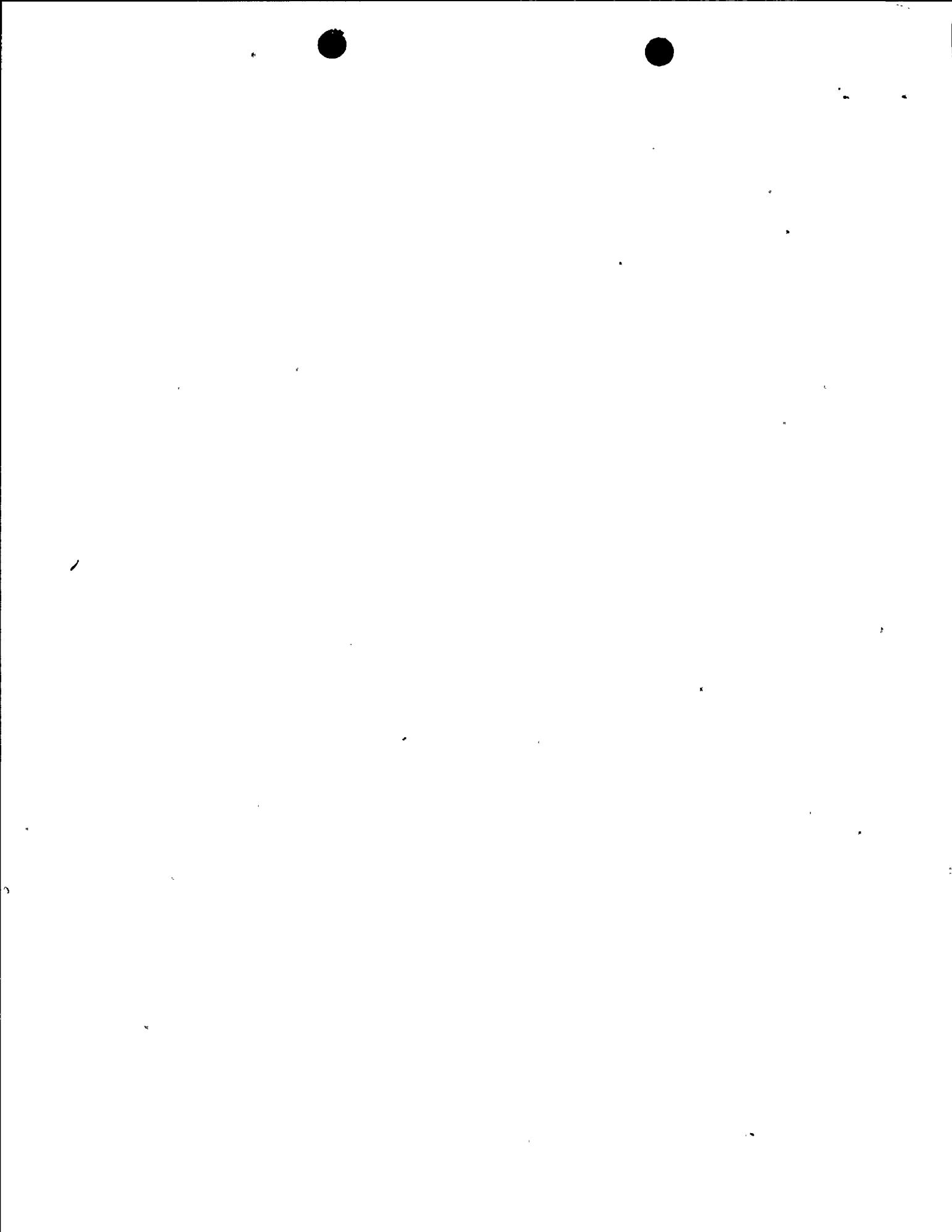


offshore from the vicinity of Point Sal on the south to Point San Simeon on the north and passes within about 3 1/2 miles of the Diablo Canyon Nuclear Power Plant at its closest approach. (One small splay of the fault passes within 2 1/2 miles of the plant). There is evidence indicating that the fault may extend further southward from the vicinity of Point Sal and that it may connect with the San Simeon fault extending further to the north past Point San Simeon.

Since the beginning of the operating license review, Pacific Gas and Electric Company has conducted additional investigations and submitted extensive information on the characteristics of the fault, its capabilities for producing earthquakes and the ability of the plant to withstand earthquakes which are more severe than those considered in the original design. The Company has proposed considering the Hosgri fault capable of producing an earthquake of magnitude 6.25. Since this earthquake would result in somewhat more severe ground shaking than the original design earthquakes, the Company has performed additional analyses in order to demonstrate that the plant could safely withstand such an earthquake.

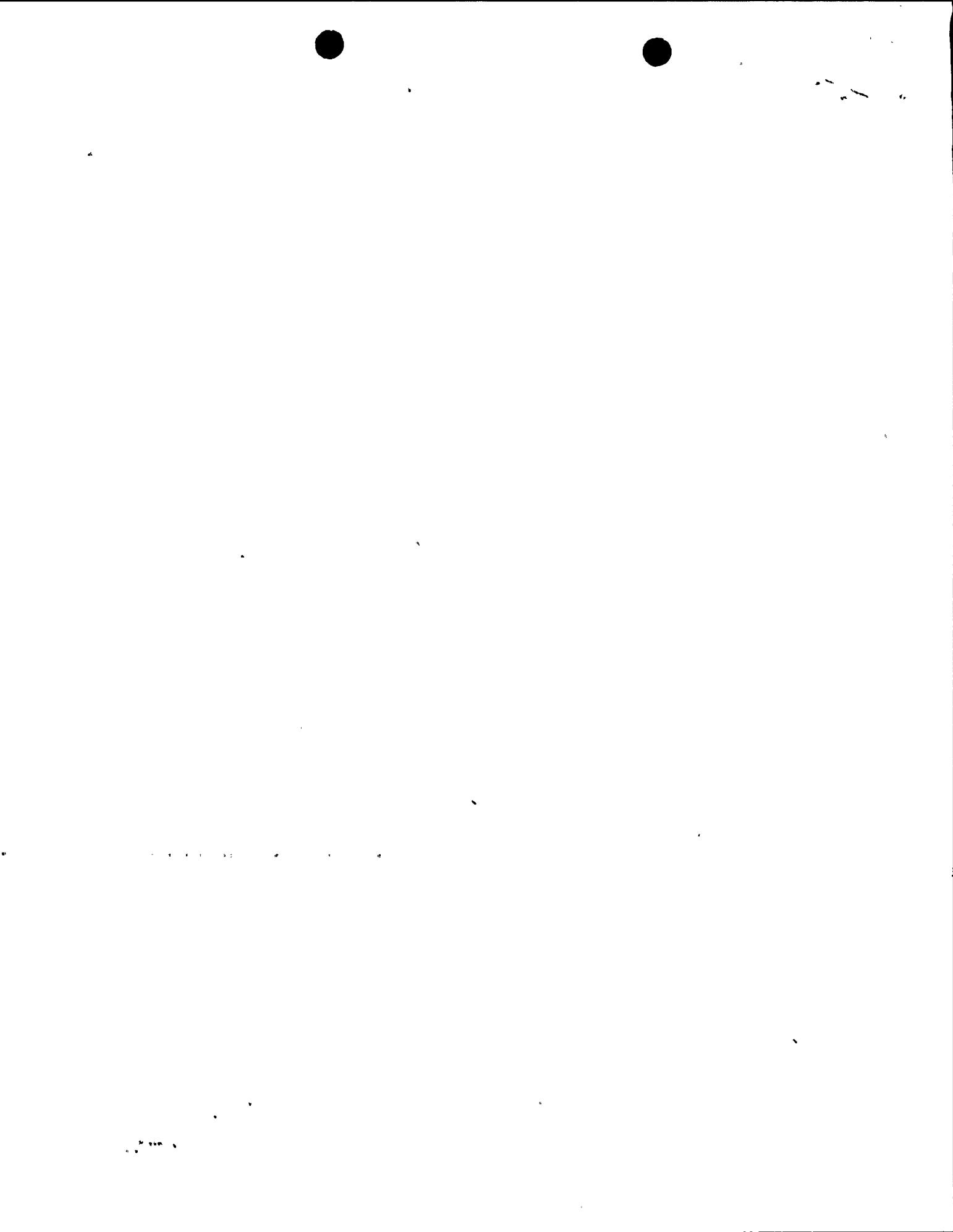
The U. S. Geological Survey, which is acting as a consultant to the Commission's staff in this review, has also conducted extensive investigations concerning the characteristics and capabilities of the Hosgri fault. The Survey has recommended considering the Hosgri fault capable of producing a larger earthquake than the magnitude 6.25 earthquake proposed by Pacific Gas and Electric. This general recommendation was made by the Survey and published by the Commission's staff in January 1975. In January 1976, after considerable further study, the Survey made a tentative specific recommendation that the Hosgri fault should be considered capable of producing an earthquake with a magnitude in the range of 7.0 to 7.5. This recommendation is based on the Survey's opinion that the fault is longer than Pacific Gas and Electric Company believes it is or, alternately, that the 1927 earthquake of magnitude 7.3 could have occurred on the Hosgri fault.

The Commission's staff has not made final conclusions concerning the capability of the Hosgri fault for producing an earthquake or the plant's capability for withstanding such an earthquake. Considering an earthquake of magnitude 7.0 to 7.5 on the Hosgri fault requires further analysis to determine the effects of such an earthquake and what modifications would be necessary to withstand such an earthquake. The analysis for an earthquake of that size at this distance from the plant would be unique in several respects. The Commission's staff



is actively pursuing an analysis of the effects of a magnitude 7.0 to 7.5 earthquake as well as considering the different interpretations of geological data.

In addition to its own technical expertise in the fields involved here, the Commission's staff has the assistance of capable consultants, including the U. S. Geological Survey. Furthermore, when the staff's evaluation is completed these matters must be considered by other bodies before an operating license can be issued. They will first be evaluated by the Advisory Committee on Reactor Safeguards. Then the Atomic Safety and Licensing Board will hold public hearings near the plant site. At these hearings the Board will consider the evidence and recommendations presented by Pacific Gas and Electric Company, the Commission's staff, the Advisory Committee on Reactor Safeguards and other parties, including the State of California and interested citizens, before making a decision concerning an operating license.



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N.R.C

February 16, 1976  
Judith Rankin  
251 41-Chester  
Pasadena, Ca. 91101

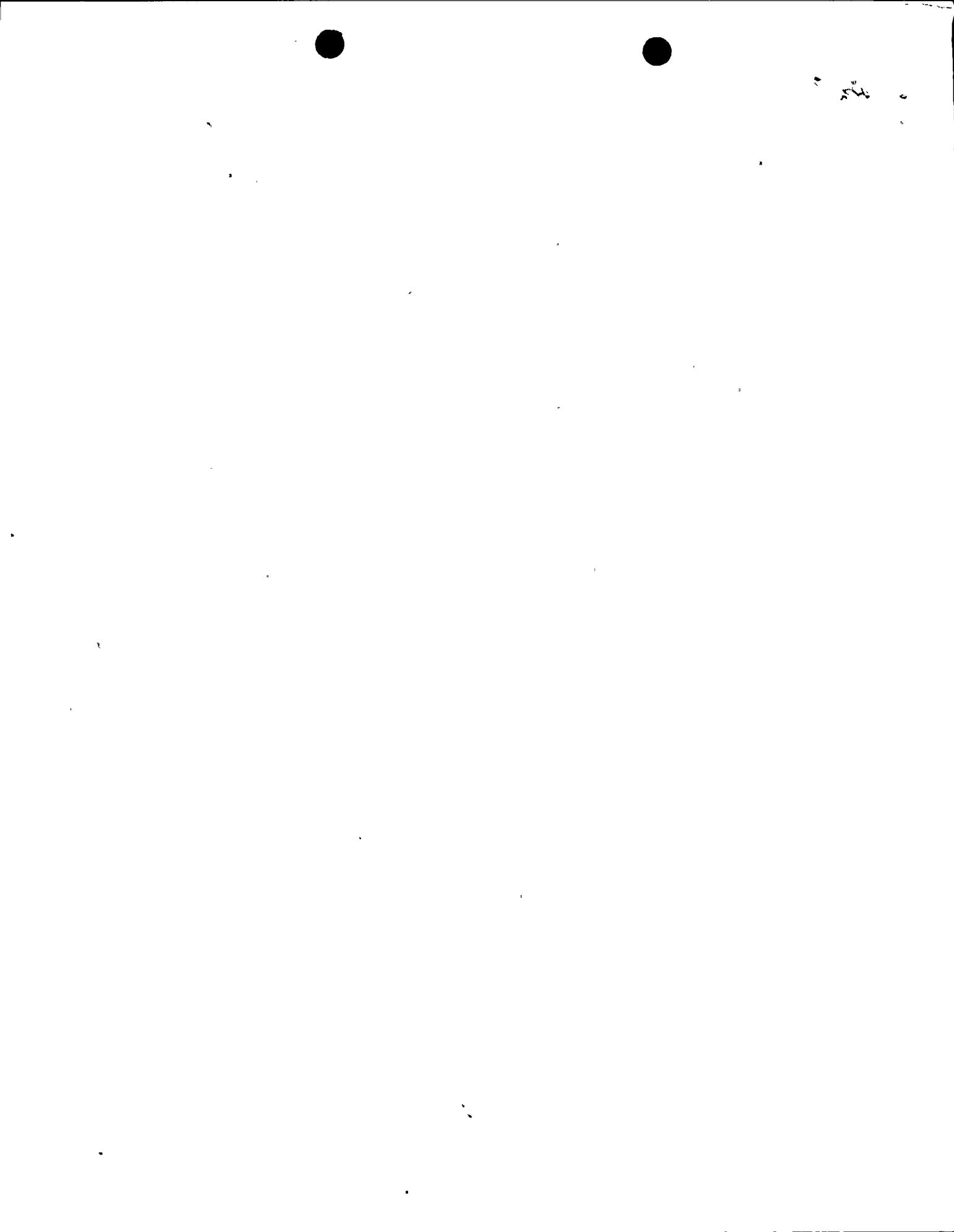
Dear Mr. President,

I am writing in concern about the nuclear energy plants, that are rapidly being constructed all over the United States. I don't understand why billions of tax-payer's dollars, that the federal budget set up for this program, is being spent so prematurely. I understand that this issue will be on the coming ballot, written up as Proposition 15, and that then, it should be decided whether or not these plants will be built and put into operation.

I know of two such plants in California, the one in operation in San Onofre and the one in production in San Louis Obispo.

Now, I know for a fact, that the nuclear energy plant in San Louis Obispo, is being constructed only  $\frac{1}{14}$  of a mile from a major earthquake fault line. Already they've made errors in the construction of this plant, by installing tons of copper piping underground, through the water, which destroyed the seabirds and fish in that area. Millions of dollars has been spent removing the copper piping and replacing it. This is only minor in consideration to what could happen.

So how can it honestly be proven that



nuclear energy be leak-proof and safe? There is no way of really testing them in advance, in case a major earthquake should happen now or in future generations.

Isn't this rushed, unthought-out progress putting more value on the inflated dollar than on millions of human's lives?

Very respectfully yours,  
Judith Rankin

