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 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323  
 AUTH. NAME AUTHOR AFFILIATION  
 PAGE, B. Stanford Univ., Stanford, CA  
 RECIP. NAME RECIPIENT AFFILIATION  
 SIESS, C.P. Affiliation Not Assigned

SUBJECT: Provides views re Hosgri Fault, including possible effects on facility.

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23 July 1991

Dr. Chester P. Siess  
401 Burwash Ave., Apt. 132  
Savoy, IL 61847

1991 6 1991

Dear Chet:

El Igne asked me to send you my comments on Jim Crouch's views regarding the Hosgri fault.

Jim Crouch is very able and experienced, so his ideas must be taken seriously. I agree with many of his convictions, including the following: (1) There are numerous post-Miocene compressional geologic features in western California, both onshore and offshore, including folds and thrust faults. (2) Some seismic focal mechanisms show that thrust faulting is still on-going. (3) Many folds and thrusts are mutually parallel and are parallel with the plate boundary. (4) Some of the compressional features seem to require, by their geometry, an underlying low-angle detachment, i.e., a sub-horizontal fault.

In the recent past I have emphasized the foregoing points myself, which of course doesn't prove anything except that Crouch and I agree to some extent.

My opinions differ from Crouch's with respect to the Hosgri fault, on the following matters: (1) He doubts that the Hosgri and San Simeon faults are parts of the same system. (2) He thinks the Hosgri is basically a thrust fault, like others alluded to above. (3) He minimizes the strike-slip component.

I believe that the San Simeon faults are parts of the Hosgri system, - most likely typical parts, and that their characteristics throw light on the nature of the Hosgri fault itself. The surface features of the San Simeon faults are those of a major fault zone. To the south, there is "no place to go" for such a zone except the Hosgri fault, albeit with a stepover. Certainly there is nothing on land to the south that could be considered a continuation of the San Simeon faults.

If the San Simeon faults are indeed a segment of the Hosgri fault zone, the latter is not primarily a thrust fault, although nearly everyone agrees that it most likely has a thrust component. The San Simeon faults are marked by east-facing scarps as well as west-facing scarps, and locally show signs of strike-slip, including offset stream channel(s) and horizontal grooves exposed in a trench. Gerald E. Weber, who studied marine terraces that are offset by the San Simeon faults, concluded that the fault zone has been a locus for vertical movements,

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but is primarily a dextral strike-slip zone. The accrued vertical offset along the Hosgri fault is very conspicuous in seismic reflection profiles, amounting to about 1 km in some cases. However, this may be overshadowed by strike-slip, which does not show in profiles, but which could be as much as 70 km or more. The San Gregorio fault, which is almost certainly a continuation of the Hosgri-San Simeon system, apparently has a total displacement of 70-150 km. Its on-land surface expression is much like that of the San Simeon faults.

If, notwithstanding the foregoing circumstances, Jim Crouch's model is correct, would it make very much difference with respect to the safety of the Diablo Canyon power plant? If the Hosgri fault dipped moderately eastward and produced a pure thrust event, I believe that the ground motion would certainly differ from that of a strike-slip earthquake, but it would not necessarily be stronger. The closest credible hypocenter (say at a depth of 8-15 km) could be at a point somewhat nearer the plant than in the case of strike-slip on a steep fault, but no closer than the depth required for the production of a strong earthquake. The slip rate would be much less for a thrust fault with a total throw of 1 km than for a fault with 70 km of accrued strike-slip, assuming the same length of time for the two total offsets. Consequently, slip events would be either smaller or less frequent for the thrust fault model.

All of the foregoing considerations are less relevant than the fact that PG & E included various types of fault slip in their logic tree which was used to derive the maximum credible earthquake, M 7.2, to be used as input for ground-motion studies. They gave strike-slip more weight (0.65) than oblique slip (0.3), but a sensitivity test in response to Question LP 8 showed little effect from using different types of slip.

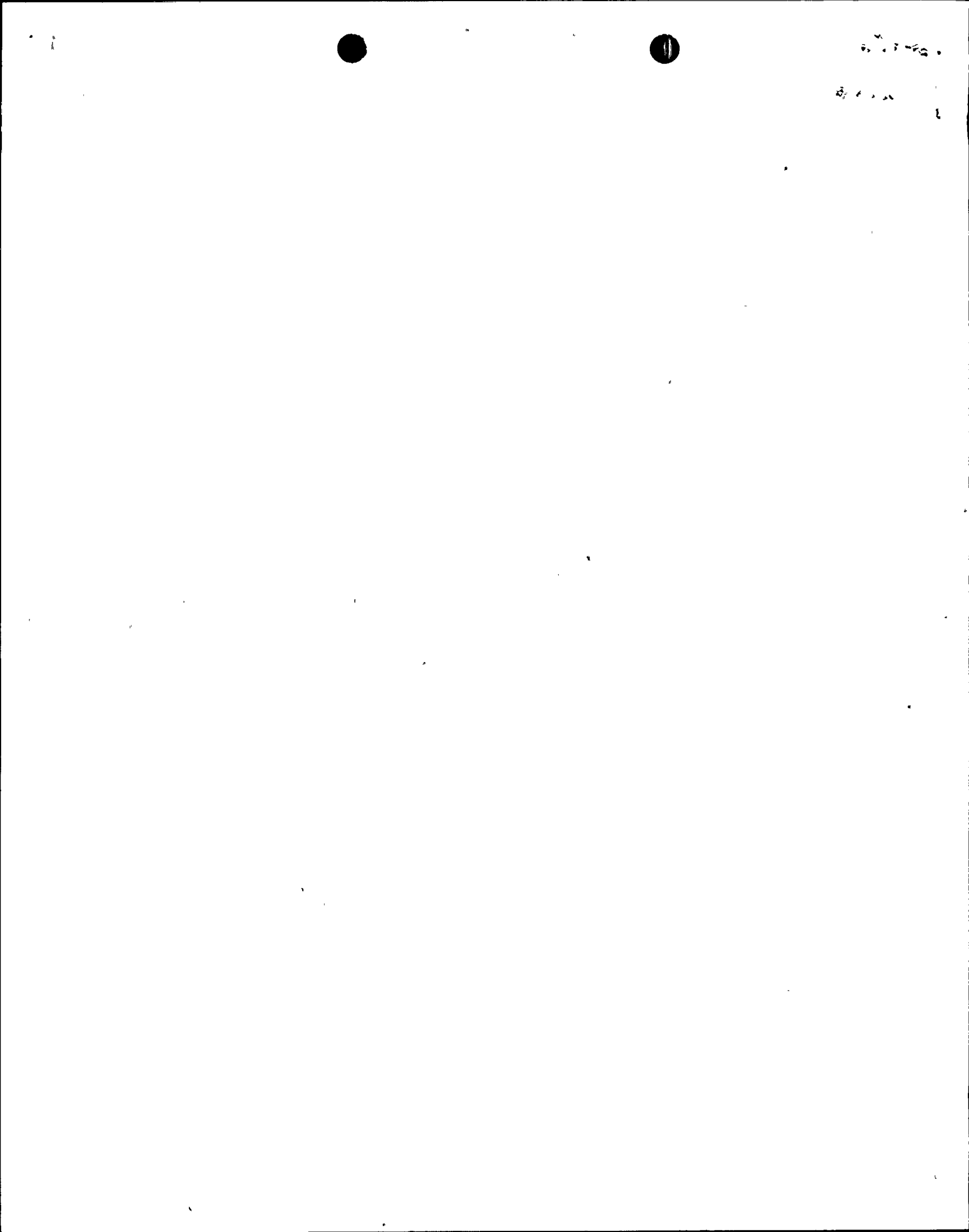
I regret that I cannot attend the August meeting to discuss these matters further, as I am seriously interested in the seismotectonics of the region around Diablo Canyon.

Best regards, Chet

*Ben*

Benjamin M. Page

cc El Igne



July 11, 1991

DOCKET NO(S). 50-275  
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Project Directorate V  
Division of Reactor Projects III/IV/V

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DATE▶	7/11/91						

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June 6, 1991

DOCKET NO(S). 50-275  
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TO: Addressees Attached

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Division Ecological Services  
Bureau of Sport Fisheries and Wildlife  
U.S. Department of the Interior  
Washington, D.C. 20240

Dr. William Cunningham  
FDA Research Chemist  
National Institute of Standards & Technology  
Reactor Building 235, Room B108  
Gaithersburg, Maryland 20899

U.S. Environmental Protection Agency  
Region X Office  
Attention: Regional Radiation Representative  
1200 6th Avenue  
Seattle, Washington 98101



June 6, 1991

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1200 6th Avenue  
Seattle, Washington 98101





June 6, 1991

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**ADDRESSES:**

Chief  
Division Ecological Services  
Bureau of Sport Fisheries and Wildlife  
U.S. Department of the Interior  
Washington, D.C. 20240

Dr. William Cunningham  
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Region X Office  
Attention: Regional Radiation Representative  
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Seattle, Washington 98101



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March 25, 1991

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