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February 7, 1964

LETTER DATED BY C. K. Beck

Clifford K. Beck, Deputy Director
of Regulation

DOCKET NO. 50-205

CONFERENCE ON BODEGA WITH SCHLOCKER AND BONILLA
JANUARY 31, 1964

At the close of an extended meeting on January 30th between representatives of the Regulatory Staff, ACRS, Coast and Geodetic Survey, Geological Survey and PG&E, during which the geology of the Bodega plant site was extensively discussed, Mr. Schlocker made it known that he had "three pages of questions" which had not been discussed (though he admitted that many questions on his list may have been discussed, he had not checked, and such opportunity for discussion had been given). Plans were therefore immediately made for the writer to meet with Schlocker and Bonilla on the following day to go over the questions which remained undiscussed, and, if necessary, to arrange another subsequent meeting with PG&E to discuss any significant issues.

Accordingly, on Jan. 31, the writer, Mr. Case, Mr. Hadlock of the AEC staff met with Schlocker and Bonilla. A summary of our discussion follows:

1. Schlocker expressed extensive embarrassment and apologized at length for having acted "stupidly" and caused himself, his chief, and the Regulatory Staff much embarrassment on the preceding day. He was further embarrassed at having to report that his extensive "three page list" of undiscussed questions was, he discovered on examination, fully discussed during the preceding day except for some minor and inconsequential points.

2. Schlocker, however, had had it brought to his attention by Mr. Anderson that his position on the probability of surface ruptures on Bodega Head in case of another 1906 earthquake, as expressed both in oral discussion and in his written report, had been misunderstood. His real position, he stated, was "the probability of surface ruptures on Bodega in case of another 1906 earthquake is very low, but he thought people should know that there nevertheless is a possibility that one might occur."

Schlocker stated that his conclusion in the written report that a surface rupture on Bodega "would" occur did not represent his true opinion; he thought "one might possibly occur"; further,

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Schlocker stated his opinion that the probability of a movement along the "shaft fault" was considerably lower still. The "shaft fault" would be no more likely to move in any future earthquake than any one of many others on Bodega Head. Upon questioning, Schlocker stated that if one hundred 1906 type earthquakes should occur, perhaps one or a "few" might cause surface ruptures on Bodega; would not agree that one rupture would appear in ten earthquakes (didn't want to be pinned down). Benilla believes the probability is lower than Schlocker does.

3. Benilla believes that the location of surface break within the San Andreas fault in case of another major earthquake would probably be close to the 1906 break. Schlocker also thinks this is probable, but he believes it is possible that the break might appear at some other location.

4. Schlocker believes that movement along any fault on Bodega in a new earthquake is quite likely to be less than an inch in magnitude but also believes that in one hundred or so 1906 type quakes "there might be a movement of some magnitude somewhere along Bodega's fault lines"... "a foot or so".

5. Benilla believes that the 1906 subsidiary ground motions at Inverness and probably Wittenburg occurred along previously established fault lines and that evidence of similar existing fault lines on Bodega has not been found. Schlocker believes that detailed examination of Bodega for 1906 surface fault has not been made (by Geologic Survey); believes any motions at Bodega in 1906 would now be obliterated by the passage of time; believes topography and aerial photographs do not show features on Bodega similar to those observed at Pt. Reyes.

6. Schlocker, on several minor points, believes:

a. Marliave photographs of the sediment fault were chosen to minimize the magnitude of the fault.

b. Tocher's "breaking wave horn of clay" indicating sliding motion along layers in the sediment could be interpreted quite differently, though he sees no real significance either way.

c. At "marker 39" Tocher indicates more significance to the "discontinuity in the fault" than Schlocker thinks is justified.

d. Schlocker does not agree with Tocher on the significance of "monoclinial folding" in the sediment layers adjacent to the fault location; thinks the two may be a coincidence.

e. Schlocker indicated he did not want to "think he was being unobjective" but did admit some emotional involvement with the differences in viewpoints between himself and Tocher and stated that he does find some satisfaction in PG&E's present inclination to agree with him that the fault in the shaft is tectonic in origin.

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7. Schlocker believes that he and Benilla were "caught unprepared" with a good explanation for the absence of a fault in the sediment at the northeast edge of the pit. Schlocker does not now fully agree with Andersen that, after the clay sediments at that location were very old, they would not absorb a ground motion without retaining traces of that motion. Schlocker thinks the clay, even after being old, might have absorbed a deformation without retaining a trace. He thinks that the absence of a fault at one or two other places may be similarly explained. Nevertheless, Schlocker now concedes that he is fully convinced that the weight of evidence clearly shows that the sediment fault is very old. Schlocker claims considerable experience with the coloring of minerals in sediments and admits that movement "of even less than an inch" in the sediments along the fault lines, as judged from the color bands, has not occurred within 500 or 1,000 years at least.

8. Schlocker restated his belief that the observed sediment faults were caused in a single event. Otherwise, there would be more branching, parallel lines of break, and other irregularities than now appear.

9. Schlocker and Benilla both insisted that none of these points were of sufficient significance to justify any further meeting with the PG&E geologists.

copies to:

HL Price

MM Mann

C. Henderson

R. Lowenstein

E.G. Case

G. F. Hadlock

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DATE ▶					

UNITED STATES GOVERNMENT

Memorandum

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TO : Files

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