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Participants Endure Debate on Diablo Safety

By GEORGE ALEXANDER, *Times Science Writer*

SAN LUIS OBISPO—There are times, attorney David S. Fleischaker confided her last week as the latest round of hearings on the Diablo Canyon nuclear power plant plodded along, when he has a fantasy of himself and all the other parties to this dispute as graybeards—still arguing the case 50 years from now.

Indeed, a sense of never-endingness came over many of the 50 people how managed to sit through six consecutive days of nine to ten hours of daily testimony, cross examination and rebuttal over the facility's safety.

There were representatives from the Pacific Gas & Electric Co., (PG&E), the utility that owns the Diablo Canyon plant; the Nuclear Regulatory Commission, the federal agency charged with overseeing nuclear power operations; the joint intervenors, the consortium of groups and individuals opposed to the plant and represented by Fleischaker; the Atomic Safety and Licensing Appeal Board, the three-man panel that will rule on the issue; and the dozen or so expert witnesses brought in by each side to make evidentiary hay while the sun of re-opened hearings shone last week.

The hearings were re-opened last summer when the intervenors—consisting of the San Luis Obispo chapter of the Mothers For Peace; the Scenic Shoreline Preservation Conference, Inc.; the Ecology Action Club; and several individuals, joined by the governor of California, Edmund G. Brown Jr.—asked the Appeal Board to reconsider the seismic worthiness of Diablo Canyon in light of the 1979 Imperial Valley earthquake.

That temblor proved to be stronger, in some respects, than scientists would expect from its Richter scale magnitude of 6.6 alone. If that were so, argued the intervenors, then might not an earthquake of equal or greater magnitude on the Hosgri Fault—only 3½ miles from Diablo Canyon—also shake more violently than PG&E and its consulting engineers were anticipating?

And could this heavier shaking overwhelm the plant's structural integrity and perhaps lead to collapse—and a melt-down of Diablo's twin, 1,100-megawatt nuclear reactors?, the intervenors contended.

Although a federal licensing board had declared Diablo Canyon to be seismically fit in late September, 1979 (not quite three weeks before the Imperial Valley event), the Appeal Board agreed to re-open the case.

The data from that earthquake, the board said in its ruling, does "raise factual issues bearing on the safety of the plant and their resolution might lead us to a different result (decision) than the one the Licensing Board reached."

The Appeal Board set forth nine issues for PG&E, the joint intervenors and the other parties to address and gave them until mid-August to file their answers. (These issues ranged from:

—Whether or not there is a sort of Law of Diminishing Returns for the intensity of ground motions caused by earthquakes above a certain magnitude. In other words, will a magnitude of 6.5 shock be almost as bad as a magnitude 7.5 as far as anything within six or seven miles of the rupture zone?

—Are the design spectra—the range of vibrations—to which Diablo Canyon was constructed truly conservative, i.e., under-estimated, for the kinds of seismic waves a magnitude 7.5 earthquake would send rolling through it?

Point of Contention

—Is there really something about a building's length and mass, relative to the wavelength of seismic waves, that "irons out" some of the energy from those waves? PG&E experts said there is such a suppression factor, which they called "tau," but the intervenors said there was no evidence of any such effect in the Imperial Valley records.

—Do seismic waves travel differently in sedimentary soils than they do in hard rock?

—Do big structures, like Diablo Canyon, interact with the ground directly underneath in such a way as to increase or decrease the building's response to ground motions?

—Did the 1927 Lompoc earthquake, a tremor of magniture 7.3, happen on the Hosgri Fault or some other off-shore fracture system nearer that city? Lompoc is about 42 miles south east of Diablo Canyon.

The parties submitted their written answers to these and the other issues raised by the Appeal Board back in August. Last week, hearings provided each a chance, through direct testimony, cross-examination and rebuttal, to reinforce a particular position or to knock down an opposing view on Diablo Canyon.

Prof. James N. Brune, a UC San Diego geophysicist appearing on behalf of the intervenors and Brown, testified that the 1979 Imperial Valley quake provided the first really good look at the conditions that develop in the ground right around the source area of the tremor. And that look, he went on to say, was surprising.

"This was the first earthquake with a magnitude greater than 6 anywhere in the world for which we had more than one near-field (meaning within a radius of approximately six miles) station to record strong ground motions," Brune said.