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October 5, 1978 PDR 11/21/78

CT-1062

Mr. R. L. Wright
Advisory Committee on Reactor Safeguards
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Wright,

In response to your request I have reviewed the report prepared by Tera Corporation on "Simulation of Earthquake Ground Motions for San Onofre Nuclear Generating Station, Unit 1."

In my opinion the research described in this report represents a major contribution--in fact a break-through--in the seismological field and has the potential for providing a vastly improved understanding of seismic wave propagation and ground motion characteristics. However I do not think that the theory has yet been developed to the extent required to provide basic design criteria for nuclear power plants for the following reasons:

1. The analyses are necessarily based on a simplified geologic profile which does not take into account either the geologic discontinuities along the travel path of the seismic waves or the non-linear characteristics of the soil layers near the ground surface. These effects could considerably modify the results obtained by the type of analysis used in this study and would need to be considered before quantitative design data could be developed.

2. I do not think that the illustrative examples presented in the report provide a sufficient degree of agreement between predicted and recorded motion characteristics to justify any reliance being placed on the usefulness of motions predicted by this approach for the San Onofre plant at this time.

Perhaps some years down the road the analysis procedure will be sufficiently improved to permit such a use--but I do not think it is good enough at this stage.

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I do not want the above remarks to detract in any way from the accomplishments of the Tera work. I consider it a great accomplishment that in spite of the complexity of the problems involved, the Tera analysis provides results as well as it does. Such results can be used I believe to provide useful guides on the general nature of seismic waves at a site but in my opinion, the procedures are not sufficiently refined or verified at this stage to be accepted as a basis for the design of nuclear power plants.

Very truly yours,

H. Bolton Seed

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HBS/nh