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April 28, 1982

Prof. David Okrent
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



Ref: Midland Site Specific Response Spectra

Dear Prof. Okrent:

I have, at the request of David Fischer of the ACRS staff, reviewed the documents listed below relating to the Midland Site Specific Response Spectra. My preliminary commentary is outlined below but, overall, I concur with the Staff's position that the 84th percentile of the site specific response spectra appropriately characterizes the SSE vibratory ground motion at the Midland Site.

My specific comments are as follows:

1. Tectonic Province--In my opinion, the Central Stable Region as a whole is the appropriate tectonic province for the Midland Site. Other subdivisions can be made, of course, as Nuttli and many others have done but the principal justification for the subdivisions is the distribution of seismicity and our knowledge of the temporal and spatial variation of that distribution is woefully inadequate. Given that inadequacy, it is preferable to use the larger division or Central Stable Region as the tectonic province. Because of the uncertainties involved, I specifically do not agree with the Applicant's arguments that the lower rates of seismicity in the Midland region relative to other Central Stable Region areas allows the selection of a lower site specific spectral response.

2. Controlling Earthquake--The controlling earthquake for the province is the Anna, Ohio event (VII-VIII).

3. Site Specific Response Spectra (SSRS)--Two major points of contention with respect to the SSRS involve

1) the inclusion of the Parkfield acceleration data in the data base for the SSRS and

2) the choice of the 50th or 84th percentile curve.

With regard to the first point, I concur with the ~~position~~ outlined by Prof. Nuttli in his letter to the Applicant's consultant dated 13 July 1981 that it is not appropriate to include data from the 1966 Parkfield earthquake in establishing the Midland SSRS. The principal points there against the use of the Parkfield data are

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a. the surface rupture

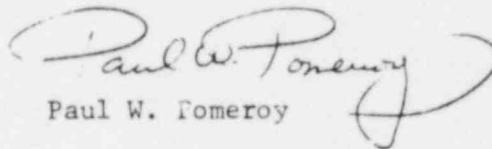
b. large amplitude high frequency vibratory motion which is not expected from Central U.S. events.

I should point out, though, that the Staff position is also correct that there are many uncertainties and unknowns associated with the Parkfield event that preclude making absolute decisions. The second point regarding the choice of percentiles is clear. The 84th percentile is reasonable based on Reg. Guide 1.60 and should be the curve selected.

To reiterate, I find that the 84th percentile spectra is adequate to characterize the expected vibratory ground motion at the Midland site given our current state of knowledge.

I hope that these comments are of use to the sub-committee in its deliberations.

Sincerely yours,


Paul W. Fomeroy

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