UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 13 1985

MEMORANDUM FOR: Ashok Thadani, Chief
Reliability and Risk Assessment Branch

FROM: Stephan J. Brocoum, Acting Chief
Geosciences Branch, DE

SUBJECT: REVIEW OF "PROBABILISTIC SAFETY ANALYSIS PROCEDURES GUIDE" (NUREG/CR-2815) APRIL 1985 REVISION

As you requested, the Geosciences Branch has reviewed Volume 2 of the subject document. Attached is a copy of the document annotated with many comments and typographical corrections. In addition, we are providing the following comments.

The Guide refers to the LLNL and EPRI probabilistic hazard studies as "regional seismic hazard evaluations". These studies are more properly characterized as using generic methodologies. The most recent version of the LLNL study is, in fact, site specific in that it accounts for the specific soil/rock characteristics of the site in the hazard estimates.

The Guide states that plants in the eastern U. S. may use a "regional study" to evaluate the site hazard. We prefer that the Guide require, that if available for a site the seismic hazard results from the LLNL and EPRI studies be used, unaltered, for the PSA. Since these studies use generic methods, are based on geologic, tectonic, seismic and statistical information from panels of experts and are undergoing intensive peer review, the results of the PSA's should then be comparable and traceable from site to site. If the utility does not agree with the results of these hazard studies it should be given the option of using, in addition, its own seismic hazard estimates. The guides prime purpose with respect to seismic hazard analysis would be to provide criteria for these estimates and any performed for the western U. S.

Occasionally in developing seismogenic source zones in the eastern U. S. experts may not be able to define specific tectonic models. In these instances the experts are required to rely primarily on their integrated professional judgement. This approach should be allowed in utility sponsored PSA's provided the method is acknowledged and the process is traceable through documentation and whatever justification used is provided. Among others, sections 9.5.2.2.1.1 and 9.5.2.2.1.4.2 should be revised to reflect this comment.

The LLNL study referenced in the Guide is an interim report published in April 1984. There is currently a draft final report which incorporates site specific geologic conditions and the final report for the first ten sites should be available in a few weeks.

Table 9.3.1 recommends the Chiburis catalog as a source of seismicity data. A better reference would be NUREG/CR 1577 (An Approach to Seismic Zonation for

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Siting Nuclear Electric Power Generating Facilities in the Eastern United States by N. L. Barstow, K. G. Brill, O. W. Nuttli and P. W. Pomeroy). This publication is more complete in that it contains the data from the Chiburis catalog and data from other catalogs for the eastern and central U. S.

We suggest that the guide recommend, in Section 9.5.1.4.2, that subsequent to the seismic hazard calculations the results be given to the panel to assure that they are in agreement with the original input assumptions.

Section 9.5.2.2.2.4, in discussing the upper bound magnitude, states that for regions of limited data a fixed increment of one-half magnitude unit is added to the maximum event size. There is a great deal of uncertainty in upper magnitude limits and it should be looked at in the context of the source region rather than be set at a fixed increment for the whole U. S.

If there is any further information we can provide, please contact L. Reiter, Section Leader, Seismology Section, or R. Rothman, Geophysicist. It may be appropriate to meet with BNL and their consultants to discuss these issues.

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cc: w/o attachment
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