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DRAFT

April 30. 1990

Dr. Chet Seiss 805 Hamilton Drive Champaign, IL 61820

Dear Dr. Seiss:

Per your request I have reviewed the following documents:

- Draft IPEEE Generic Letter No. 88-20-Supplement XX
- (2) Draft NUREG-XXX, Procedural and Submittal Guidance for Individual Plant Examination of External (IPEEE) for Severe Accident Vulnerabilities. February 1990.
- (3) Draft Report of the External Events Steering Group, Guidelines for Conducting the Individual Plant Examination for External Events (IPEEE)

and have a number of comments.

A. Generic Letter

Comment 1- Ref. Appendix 1 - Summary of Seismic IFEEE Enhancements

The text of Appendix 1 appears to indicate these are different and fewer enhancements required using PRA as compared to the SMM (e.g. SMM appears to require a soil liquefaction analysis and containment evaluation while PRA does not). Actually NUREG-XXX requires the same enhancements independent of which method is used. Appendix 1 should be rewritten so as not to appear biased toward PRA.

Comment 2 - Ref. Identification of External Hazards

It is noted there has been no explicit identification of postulated turbine missiles and small airplane crash in the IPEEE scope. It is my understanding these phenomena are usually considered enveloped in design by the 10⁻⁷ tornado requirement. However, if the IPEEE tornado is reduced to the 10⁻⁵ level (See Section 5.2.4 of NUREG-XXX) are these other two phenomena still enveloped? If not, they might require explicit consideration in a IPEEE program.

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B. NUREG-XXX- Procedural and Submittal Guidance

Comment 3 - Ref. NUREG-XXX Table of Contents

While it may be justified by the different contributions to core melt of seismic as compared to flood and extreme wind, Section 3 for seismic acceptance methodology contains nine detailed pages of methodology while wind and flood have only two general pages of guidance. It is recommended that a significant amount of the time in the workshop be addressed to better development or definition of flood and extreme wind (tornado) guidance which do not appear to be nearly as well developed as do the seismic requirements.

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Comment 4 - Raf. NUREG-XXX Section 3.2.2 Review Level Earthquake

The bining and selection of the Review Level Earthquake, RLE, appear to be based entirely on the seismic hazard at a particular site and ignore the relative conservatism of the seismic design basis of the plant which is contained not only in the PGA but also in the shape of the design spectra. In my opinion bining and selection of the RLE should also depend on a comparison of the EPRI and LLNL hazard spectra to the plant design spectra. If a plant has used a relatively conservative design spectra, this should be considered in selection of both bin and RLE levels.

Comment 5 - Section 3.2.2

It is not clear why shallow soil conditions sites have been singled out for special consideration. The concern identified appears to be more a problem with use of finite element soil structure interaction analytical models with vertically propagation shear waves rather than actual observed significant seismic amplification of earthquake motions at such sites. A review of Table 3.1 suggests there are several other plants which have shallow soil conditions and/or are founded on piles which have not been identified as requiring special attention. Such concerns if real should be considered in a consistent manner.

C. NRC External Event Steering Committee Report

Comment 6 - Tornado Margins Methodology

The report lists several seismic enhancements in Section 3.2.5 and 3.2.6. Similar enhancements should be developed for 10⁻⁵ tornado effects. As a minimum a reference should be given as to where criteria associated with an increased tornado probability should be given (i.e. ANS 2.3) associated with:

 buildings, equipment and tanks, etc. to be evaluated for tornado effects Dr. Chet Seiss April 30, 1990 Page 3

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- wind fields (b)
- (c) pressure fields
- (d) combinations of wind and pressure fields
- (e)
- missiles and missiles combined with wind and pressure fields tornado induced differential pressures within buildings at the 10⁻⁵ (f) level

In general 1 find a lack of balance between the seismic and other IPEEE concerns. Please advise if you require any clarification of this letter.

Sincerely,

N. de I. John D. Stevenson President

JDS:ss