SECOND ROUND REQUEST FOR ADDITIONAL INFORMATION – PERRY NUCLEAR POWER PLANT UNIT 1 LICENSE RENEWAL ENVIRONMENTAL REVIEW

Info Need SAMA-3.1

REQUIREMENT: Applicants for license renewal are required by 10 CFR 51.53(c)(3)(ii)(L) to consider SAMAs if not previously considered in an environmental impact assessment, related supplement, or environmental assessment for the plant. As part of its review of the Perry Plant SAMA analysis, NRC staff evaluates the applicant's treatment of external events in the PRA models.

ISSUE: The NRC staff is unable to reach a conclusion on the sufficiency of the applicant's PRA models for supporting the SAMA evaluation without this information.

REQUEST: Please provide the following information with regard to the treatment and inclusion of external events in the SAMA analysis.

The response to RAI SAMA-3.b assumes that there is no benefit to the internal eventsrelated SAMAs for a reduction in external events risk (i.e., seismic and fire). It is explained that use of an external events multiplier, which is one suggested approach in NEI 05-01, is not reasonable because of the resultant excessively high multiplier (i.e., 45.7). An alternative approach was taken to evaluate each SAMA candidate individually to determine what hazards are impacted by each SAMA. A few examples of this assessment were provided. The result of this assessment is that none of the internal events-related SAMAs had any impact on reducing fire or seismic risk.

This approach is inconsistent with an analysis intended to assess the applicable SAMA impacts on reducing the risk from the seismic and fire external events. This is because the seismic- and fire PRAs are based on the internal events PRA [emphasis added] to account for random failures in association with external hazard initiators. The provided analysis logic is backwards, implying that SAMAs which have little risk reduction for internal events also applies to seismic and fire external events. Therefore concluding, no assessment of a SAMA's risk reduction for the seismic and external events is necessary. The staff disagree with this screening logic.

To assess a particular SAMA's impact in reducing external hazard risk, the analysis must first carry forward the information from that external hazard into the internal events PRA. This is described in NEI 05-01, Section 7.1.1, Severe Accident Risk with SAMA Implemented, in which "[f]or SAMAs specifically related to external events, estimate the approximate benefits through use of the external events PRA, if available, or bounding-type analysis, (e.g., estimating the benefit of completely or partially eliminating the external event risk)."

The staff understand the licensee's analysis using the Electric Power Research Institute (EPRI) Fire-Induced Vulnerability Evaluation (FIVE) method produces fire zone CDF values that are conservatively high and not necessarily suitable for comparison with best-estimate internal events CDF values. This in turn results in an external event multiplication factor which may misrepresent the benefits of each SAMA in during the Phase II screening. The staff understand if a fire PSA model was created, the results should be less conservative than the FIVE method. However, the information available

for this license renewal in performing the SAMA analysis is based on the EPRI FIVE analysis method.

For each internal events-related SAMA (i.e., SAMA-2, SAMA-3, SAMA-8, SAMA-10, SAMA-11, SAMA-12, SAMA-14, SAMA-16) either provide justification for why such an approach is acceptable to support the conclusion that there is no risk reduction benefit for fire and seismic hazards or provide a revised SAMA analysis that accounts for the risk reduction benefit for these hazards (e.g., use of an external events multiplier) which is consistent with the methodology of NEI 05-01.