

“Which Way SPRA?”

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Impacts of Seismic Motion on Response of Nuclear Plant Operators

- What does experience show concerning the impact on nuclear plant operator responses, including loss of offsite power recovery, as a function of seismic motion levels?
 - Impact of motion on human body?
 - **Are there Seismic motion levels where no actions should be credited?** Even if no structural failures? For what period of time?
 - Time-dependence of delays in recovery; minutes, hours, days? (For FLEX equipment.)

Contributors to Large, Early Release

- For higher seismic sites, what failure criteria should be assumed when evaluating potential building failures that may open up pathways to the environment that could result in large, early releases?
 - Reactor or auxiliary building failures through which many piping systems penetrate the containment walls.
 - Physical Interference between Critical Buildings
- Can we **identify a reasonably complete set of systems, structures, and components that may potentially contribute to large early release frequency** and that should be evaluated. This would be preferable to defining a SSC screening criterion, based on failure frequency, to assess which SSCs are to be evaluated for seismic capacity.

Computational Methods?

- The methods developed 50 years ago had to simplify the approach to seismic probabilistic risk assessment (SPRA) in order to perform the computations.
 - Can we now computationally evaluate seismic risks using simulation techniques of integrated models for seismic hazards, SSC fragilities, and plant sequence response?
 - Why parameterize instead of **solving many seismic motion time-history samples** beginning to end?
 - If necessary, could we perform the seismic motion simulations for a reduced set of limiting structures, systems, and components (SSCs)?
 - Are we overstating the risks and/or understating the uncertainties by evaluating the problem in stages that require the results at the end of each stage to be simplified?

More SPRA Topics


- Importance of Modeling Correlation between Identical or Dissimilar SSCs
- Enhance Structure and Equipment Screening Criteria for Higher Seismic Sites; i.e., enhance Tables 2-3 and 2-4 of EPRI NP-6041-SLR1 (1991)
- Formulate Less Man-Hour Intensive Approaches to Relay Chatter Screening
- Identify Multi-unit Factors on Operator Responses
- Standardize Appropriate Levels for Truncation of Fragility Curves at low acceleration Levels



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