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Perspectives on Risk Assessment for External Hazards

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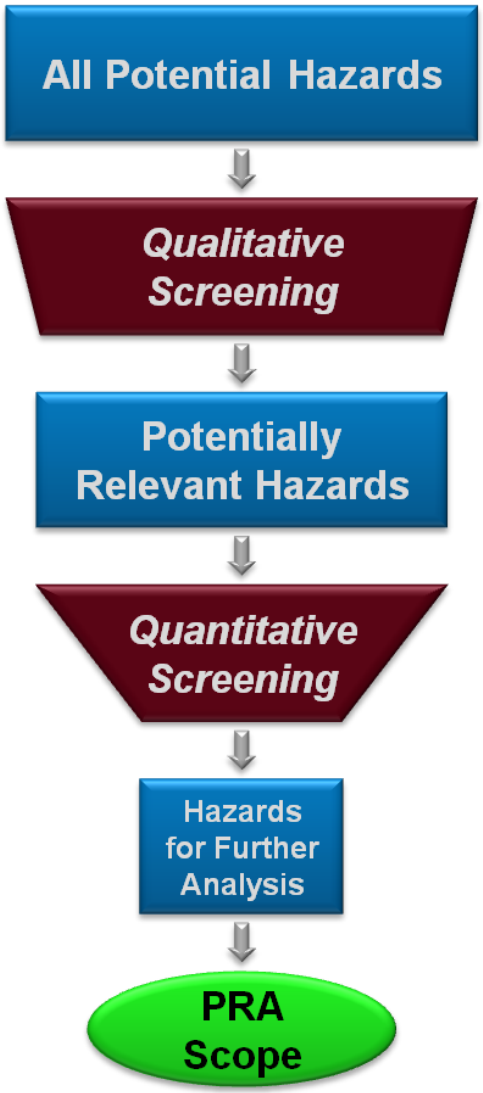
EPRI Guidance to Focus PRA Efforts

- EPRI 1022997, December 2011
  Identification of External Hazards for Analysis in Probabilistic Risk Assessment
- Insights from development
  - Importance of plant-specific nature of hazards
  - Value of complementary qualitative and quantitative criteria



Use of EPRI Guidance

- Wide apparent interest among EPRI members
- Collecting of feedback from initial users underway
- Early insights for potential improvements
  - More detailed implementation process
  - Additional guidance on combined or correlated hazards

Methods for External Flooding

Activities

- Review of available methods
  - Unique treatments for different flood sources
  - Experience of US agencies and international organizations
- Selection of most promising approaches
- Testing in table-top and pilot applications

External Flooding Methods

Example resources explored and used:

Hazard	Probabilistic Methods and Applications
River	• Stochastic Event Flood Model (SEFM) • RunOff Routing Monte Carlo (RORB_MC) • Climatic-Hydrological Simulation of Extreme Floods (SCHADEX)
Hurricane	• Joint Probability Method (JPM) • NUREG/CR-7134 Modeling Set

From 2013 Regulatory Information Conference Presentation – A. Miller and K. Huffman

Updating Methods for High Winds

Background

- Significant technology advancements in 1970's and 1980's
- EPRI's focus at that time: tornado missile evaluations

Current status

- Several new studies – most outside US
- EPRI updating methods and guidance (part of our *External Hazards Roadmap*)

Roadmap for High Winds Research

- Extracting useful information on high-wind phenomena from available sources
- Focus on missiles and wind loadings
  - Nature of vulnerabilities (actual and potential)
  - Exploring graded approach to fragility assessment
- Evaluating need to update risk analysis tools

Summary

- Challenges are site- and plant-specific
- Progressive screening can be effective
  - Focus use of resources
  - Assure important hazards are considered
- Current focus is to
  - Advance the state-of-practice for certain hazards
  - Improve ability to obtain insights and manage risks

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