

Improving Fire PRA Realism through Research

Risk Informed Steering Committee
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NRC/RES and EPRI Joint Fire Risk Research

- NRC and the Electric Power and Research Institute (EPRI) have been working together under a Memorandum of Understanding (MOU) on Cooperative Nuclear Safety Research since 1990s
- Significant Advancements in State of the Art FRA
 - Programmatic Information Exchange
 - Technical Information Exchange
 - Jointly-Sponsored and Cooperative Projects
 - Fire Risk Re-quantification Study

Realism in Post-Fire Safe-Shutdown Analysis

- Modern Testing of Electrical Cable's Response to Fire Conditions
- Advancements in Post-Fire Safe-Shutdown Circuit Analysis
- Established Regulatory Stability for Appendix R and NFPA 805 Circuit Analysis
 - Technical Basis to support updating NEI-00-01 and Regulatory Guide 1.189

Realism in Fire Hazard Analysis and Fire Modeling

- Developed Fire Model Verification and Validation Report and Application Guide
- Realistic Cable Fire Modeling
- Realistic Cable Failure Modeling
- Obstructed Plume and Realistic HRR from Electrical Enclosures

Current Fire Research Activities in Process that Improve Fire PRA Realisms

- Joint NRC – EPRI Projects
 - Transient Fire HRR
 - In-Cabinet Fire Growth
 - Ignition Criteria for Cable Trays
 - Fire Growth Profiles for Different Ignition Sources
 - Additional Obstructed Plume Zone of Influence
 - Cabinet to Cabinet Fire Propagation
 - Main Control Room Abandonment HRA
 - Electric Pump and Motor HRR

Current Status of NRC Fire Research Program

- Office of Nuclear Reactor Regulation (NRR) and office of Nuclear Regulatory Research (RES) are currently reevaluating and prioritizing research needs
- Will develop a “Fire Research Plan”
- Stakeholder input will be solicited