FINAL **Draft Technical Study on Spent Fuel Pool Accident Risk at Decommissioning Plants**

REPORT OUTLINE

Executive summary (Responsible branch: SPLB)

1. Background (SPSB)

2. Risk Informed Decision Making (SPSB)
    1. Five Principles of RG 1.174
        1. Regulations
        2. Defense-in-Depth
        3. Safety Margins
        4. Impact of Small Changes
        5. Implementation and Monitoring Program

3. Risk Assessment of Spent Fuel Pools at Decommissioning Plants (SPSB)
    1. Basis of findings of SFP risk assessment
    2. Characteristics of SFP design and operations for a decommissioning plant
    3. Internal Event Scenarios Leading to Fuel Uncovery
        1. Loss of Offsite Power from Plant-Centered and Grid Related Events
        2. Loss of Offsite Power from Severe Weather Events
        3. Internal Fire
        4. Loss of Cooling
        5. Loss of Coolant Inventory
        6. Heavy Load Drops
        7. Seismic Events
        8. Aircraft
        9. Tornados
        10. Recriticality in Spent Fuel Pool

4. Implications of SFP Risk for Regulatory Requirements (SPSB)
    1. Summary of Technical Results
    2. Risk Impact of Specific Design and Operational Characteristics
        1. Proposed change results in an increase in Core Damage Frequency
        2. Proposed change remains consistent with defense-in-depth philosopy
        3. Proposed change maintains sufficient safety margins
        4. Proposed change should be monitored using performance measurement strategies
    3. Implications for Regulatory Requirements Related to EP, Security, and Insurance
        1. Emergency Preparedness
        2. Security
        3. Insurance

5. References
6. Acronyms

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Appendices

1. Thermal Hydraulics (SRXB)
2. Frequency of Fuel Uncovery (SPSB)
   - 2a. INEL PRA report - event/fault tree
   - 2b. Seismic
   - 2c. Heavy Loads
   - 2d. Aircraft
   - 2e. Tornado/Weather
3. Criticality (SRXB)
4. Consequence Assessment from Zirconium Fire (RES/SPSB)
5. Seismic Checklist
6. Nuclear Energy Institute Committments
7. Kennedy's Report
8. Gareth's HRA Study
9. Stakeholder Interactions (SPSB)

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