Harris Nuclear Plant (HNP) NFPA 805 Transition

Fire Safety Analysis (FSA) Update

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Status -

- To date: 2nd round change evaluation team meetings performed to discuss variances and resolve strategy for each fire area transitioned with performancebased approach (approximately 16 fire areas)
- In Progress: strategy finalization, calculation preparation and design verification, final list of proposed plant modifications





- Purpose: Demonstrate achievement of nuclear safety and radioactive release performance criteria of NFPA 805 as required by 10CFR50.48(c)
- Methodology: FSA is Progress Energy's design basis document as described in NFPA 805:2.7.1.2
 - Section 3.1 details steps performed to develop FSA





- Section 3.2 Classical Fire Protection
 - Fire Response Strategy
 - Construction
 - Ventilation
 - Detection
 - Automatic Suppression
 - Manual Suppression





- Section 3.3 Fire Hazards Identification
 - Normally expected fire hazards for the fire area
 - Area specific classifications/designations
- Section 3.4 NSCA Compliance Summary
 - Fire area contents
 - Approaches utilized to demonstrate compliance
 - i.e. deterministic, performance-based, combination





- Section 3.5 Non-Power Operational Modes Compliance Summary
 - Review conducted using guidance found in NEI 04-02 and FAQ 07-0040
 - Calculation HNP-E/ELEC-0002 presents methodology, "pinch points", and description of strategy developed to resolve concern
 - High level results of the non-power operations evaluation presented within the FSA for the particular fire area





- Section 3.6 Radioactive Release Compliance Summary
 - High level results of fire area radioactive release evaluation
- Section 3.7 Probabilistic Risk Assessment Summary of Results
 - Listing of all fixed ignition sources in the area for which the calculated risk is equal to or above 1E-8/year for CDF
 - If the CDF takes into account the assumption that a plant modification will be performed, a narrative description is provided with reference to Attachment 2 (i.e. incipient fire detection, installation of new automatic suppression system, etc.)





- Section 3.8 Risk Informed, Performance-Based Evaluations
 - Summary of results for the fire area
 - Detailed information found in Attachment 2 – i.e. Transition Change Evaluation

Section 3.9 Defense-in-Depth

Extent to which fire protection systems and features are provided





- Section 3.10 Monitoring Program Input
 - High-level for FSA
 - Procedure provides detailed information for methodology
- Section 4.0 Conclusions
- Section 5.0 Attachments
- Attachment 1 NEI 04-02 Table B-3 Nuclear Safety Capability Assessment Summary





- Attachment 2 Scenario Discussions Change Evaluations:
 - Change Description identifies changes for evaluation in fire area -
 - A. Variances from Deterministic Separation Requirements (based on deterministic pretransition post-fire safe shutdown analysis)
 - B. Other Changes Being Evaluated (includes operator manual actions not previously approved/allowed)
 - C. ERFBS (i.e. Hemyc, MT)





- Scenario Descriptions and Model Results
 - Summary of results on a fire scenario basis
 - Includes listing of all change process targets associated with ignition sources in the area in which the calculated risk is equal to or above 1E-8/year for CDF
 - Targets addressed were those identified as being in the Zone of Influence (ZOI) of risk significant sources
 - Resolution options provided on a scenario basis (i.e. incipient detection for a panel to prevent flame and radiant heat energy from igniting cables and causing a hot gas layer)





- Scenario Descriptions and Model Results
 - Scenarios below 1E-8 not addressed in evaluation because any change in risk is below the RG 1.205 acceptance criteria which bound the RG 1.174 criteria
 - Change process targets that are not within the ZOI are free of fire damage, and therefore, considered acceptable "as-is"





- Risk Evaluation
 - Assessment of Change in CDF and Change in LERF
- Impact of Change on Defense-in-Depth
- Safety Margin Considerations
- Transition Change Evaluation Conclusions





Questions?



