NOT FOR PUBLIC DISCLOSURE

Key Assumptions in Licensee SDP Analysis

- All Cables in Overhead Trays are **Thermoset,** 700 ^{0}F Damage Temperature (NRC Cable Damage Temperature = 425 ^{0}F due to Uncertainty of Cable Type)

- Heat Release Rate Profile of 100kW, Average Time to Peak HRR is 12 Minutes (NRC HRR Profile is 200kW ~ 500kW in 5~10 min.)

- Flame Spread Rate of 10 ft/hr ("Slow Growth") for Energetic Fire in A4 Switchgear Cabinet (NRC models Fast Growth)

- Simulation of Fire Scenarios
  - Moderate to high stress in Main Control Room, Stress Factor = 2 (NRC value = 5)
  - Local actions are feasible
  - No significant additional stress
  - Lighting is available along path for local actions
  - Local environment permits action (temperature, smoke, lighting, etc.)
  - Sufficient time to reach the fire zone and take action,1~5 minutes (NRC models 10 minutes)

– Loop / no Loop / Partial??
– MFW / NO MFW

2-6

Human Reliability Screening Analysis

- Categories of Important Operator Recovery Actions
  - Manual alignment of emergency feedwater to the steam generators
  - Restoration of service water to affected diesel generators
  - Isolation of letdown flow and inventory control
  - Local start of a diesel generator without dc control power

- Human error probability (HEP) estimates determined using NRC ASP methodology, INEEL/EXT-99-0041, "Revision of the 1994 ASP HRA Methodology (Draft)," January 1999.

Integrated Assessment of Fire-Induced CDF

- Fire Risk Equation:

$$F_{CDF} = F_i * S_f * P1 * P2 * P3$$

where: F_i = Fire ignition frequency of ignition source
S_f = Severity factor for a challenging fire
P1 = Probability of automatic fire suppression system being unavailable
P2 = Failure probability of manual suppression by fire brigade
P3 = Conditional core damage probability (CCDP), with or without recovery actions

- Identified Ignition Source Scenarios
  - Electrical Switchgear Cabinets
  - Transformers
  - Ventilation Subsystems