2008 AEC-NRC Bilateral Technical Meeting

FIRE PROTECTION REGULATION AND APPROACH In Taiwan

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Current Regulatory Activities

- Reactor Safety Cornerstones FP Inspection
  - AEC-NRD-IP-111.05AQ Fire Protection (Annual/Quarterly)

    (Basically refer to NRC IP71111.05AQ)
  - AEC-NRD-IP-111.05T Fire Protection (Triennial)

    (Basically refer to NRC IP71111.05T)

	CS NPP	KS NPP	MS NPP
2007/Q2	IP-111.05AQ	IP-111.05AQ	IP-111.05AQ
2007/Q3	IP-111.05AQ	IP-111.05AQ	IP-111.05AQ
2007/Q4	IP-111.05T	IP-111.05AQ	IP-111.05AQ
2008/Q1	IP-111.05AQ	IP-111.05AQ	IP-111.05AQ

Current Regulatory Activities (cont'd)

- Major Focused Inspection Items of NRD-IP-111.05AQ
  (1) Control of Transient Combustibles and Ignition Sources
  (2) Fire Detection and Suppression Systems
  (3) Passive Fire Protection Features
  (4) Manual Firefighting Equipment and Capability
  (5) Compensatory Measures

- Major Focused Inspection Items of NRD-IP-111.05T
  (1) Shutdown from Outside Main Control Room
  (2) Passive /Active Fire Protection
  (3) Protection from Damage from Fire Suppression Activities
  (4) Communications
  (5) Emergency Lighting
  (6) Circuit Analyses
  (7) Procedures, Staffing and Training

Current Regulatory Activities (cont'd)

- Lessons Learned from Earthquake in Japan KK plant on July 16th, 2007.

1. Set up hotlines between the MCR of each NPP and the Local Fire Department
2. Added automatic fire-fighting equipment for the startup transformers at the switchyard of the NPPs
3. Enhanced corrosion monitoring of the buried fire water pipelines. A long-tem plan to use the overground water pipelines is proposed.
4. Enforced drills on fire-fighting for potential fire accidents on transformers associated with earthquakes under the condition that water is unavailable.

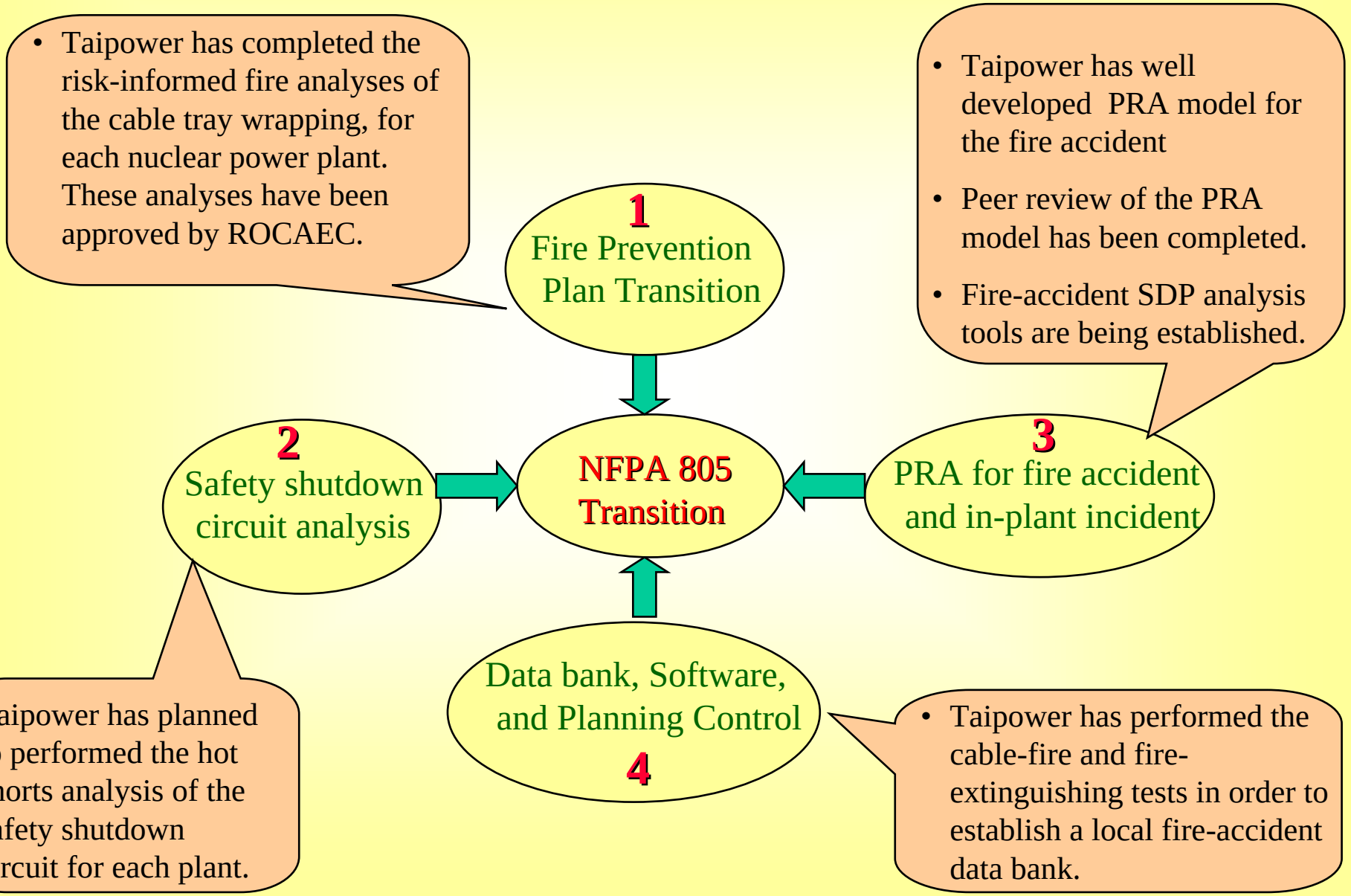
Approach to NFPA 805

- NRC adopted Risk-Informed Performance-Based Rule, NFPA 805, in June 2004, as an alternative to current deterministic rule.
- NFPA 805 is a voluntary alternative to the fire protection rule. It could reduce the need for exemptions and unnecessary regulatory burden associated with the current deterministic approach, and maintain reactor safety while adding appropriate flexibility to licensees' fire protection activities.
- Oconee and Sharon Harris volunteered to be the pilot plants for the transition to NFPA 805. The pilot implementation was kicked off in August 2005.

Approach to NFPA 805 (cont'd)

- In 2006, AEC sponsored a NFPA 805 research project with the Department of Fire Science of the Central Police University for study on "Applicability of the safety fire code to NPPs and possible transition to NFPA 805."
- The research concluded that it would be worthy to proceed with the transition to NFPA 805 after the pilot implementation result in the USA is confirmed. Chinshan NPP was chosen as the pilot plant for implementation of the transition in Taiwan, and if successful, transition will be implemented on other NPPs.
- In 2009, AEC will sponsor another NFPA 805 research project.

Approach to NFPA 805 : Preparedness in Taipower



Fire Barrier Exemption by Risk-Informed Fire Analysis (RIFA)

- Concern of the fire rating and material used for THERMO-LAG cable barrier raised in 1990s.
- Taipower had searched for and found some possible candidate to replace THERMO-LAG.
- A risk-informed fire analysis (RIFA) had been adopted to resolve the fire barrier issue.

Fire Barrier Exemption by Risk-Informed Fire Analysis (RIFA) (cont'd)

- Taipower submitted RIFA analyses reports for fire barrier exemption for the three operating NPPs to AEC in May 2003.
- AEC had formed a special review team and conducted safety assessment for more than one year.
- With no significant safety impact to the plants and general public, AEC had conditionally approved the exemptions with follow-up action requirements.

Fire Barrier Exemption by Risk-Informed Fire Analysis (RIFA) (cont'd)

- Taipower committed to develop post-fire safety shutdown circuit analysis for the NPPs.
- Plant-specific items are:
  - For Chinshan, modify fire extinguishing system and re-route cables in certain fire zones.
  - For Kuosheng, six critical cables need to be re-routed.
  - For Maanshan, a physical wall is needed for cable separation inside the essential chilled water room.

Conclusion - Safe Today, Safer Tomorrow

- Cornerstone fire protection inspection program for reactor safety has been established, and inspections will be routinely conducted. Additionally, regulation requirements have been issued, and precautionary measures taken for the NPPs in Taiwan, based on the lessons learned from the July 16, 2007 earthquake at Kashiwazaki-Kariwari NPP.
- Taiwan has partially adopted the Performance-Based technology for fire control and prevention engineering.
- AEC encourages Taipower to evaluate the possibility to proceed with the transition to NFPA 805 after the pilot implementation result in the USA is confirmed.
- AEC will sponsor another NFPA 805 research project for further study.

Thanks for your attention