

# **NFPA 805 Transition August Pilot Observation Target Selection**

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August 7, 2007 Bethesda, MD**



# NFPA 805 Target Selection Introduction

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- Iterative Approach
- Fire PRA scenarios
  - ▶ Full compartment and ignition source basis
  - ▶ Start with scoping results
  - ▶ Include transient
  - ▶ More refined analysis as needed
- Change Evaluations
  - ▶ Start with Fire PRA scenario results
  - ▶ Add detail as needed to support evaluations
- Document analysis results in common calc
  - ▶ Only includes detail beyond scoping level

# NFPA 805 Target Selection

## Fire PRA Scenario Scoping Recap

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- Purpose - NUREG/CR-6850
  - ▶ Screen out those fixed ignition sources that do not pose a threat to the targets within a specific fire compartment, and
  - ▶ To assign severity factors to unscreened fixed ignition sources
- Zone of Influence (ZOI) Determination
  - ▶ NRC Fire Dynamics Tools (FDT<sup>s</sup>)
- Walkdowns by Source to Identify Targets
  - ▶ Collected target data, where targets included conduits, plan points, cable trays, other sources, and intervening combustibles
- Source-Target Database
  - ▶ Multiple HRR

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## Fire PRA Scenario Refinements

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- NUREG/CR-6850 Methods for Reducing ZOI
  - ▶ Double-wall cabinets with air gap – limits horizontal flame propagation
  - ▶ Non-vented cabinets with multiple points of contact – flame propagation limited
- Addressing HGL
  - ▶ Screen based on the most conservative of the MQH natural ventilation and Beyler closed door methods
- Examples from the supporting calculation
  - ▶ MCC Example w/ FDT<sup>s</sup>
  - ▶ MQH/Beyler HGL Screen
  - ▶ Transient, Detailed Flame Spread Tool w/ CFAST

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## Treatment of Transients

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- Transient Exclusion Zones
  - ▶ Do not postulate specific transient fires for change evaluations
  - ▶ PRA addresses potential breakdown of administrative controls
- Non-Exclusion Zones
  - ▶ Postulate transients fire scenarios based on change evaluations needs
  - ▶ PRA placement of transients same as that for exclusion zones

# NFPA 805 Target Selection Change Evaluation Support

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- Change Evaluation Target Selection
  - ▶ Fixed ignition sources that could directly impact the targets of concern based on physical location. Target data captured in PRA database – refine as needed.
  - ▶ Fixed ignition sources that could remotely impact the targets of concern via flame spread or fire propagation.
  - ▶ Fixed ignition sources that could remotely impact the targets of concern through generation of a hot gas layer.
  - ▶ Transient ignition sources, in addition to those in the PRA database, are postulated when needed.
- Task iteration is expected
  - ▶ As we develop more data about each fire scenario we can better determine the need for additional data to address the issues.

# NFPA 805 Target Selection Data Packaging

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- Most of data is in the PRA database
- Refinements for select scenarios are in a calculation by compartment/fire area
- Engineering review process used for calculation
- Quality is driven by NUREG-1824, *Verification and Validation of Selected Fire Models for Nuclear Power Plant Applications*

# NFPA 805 Target Selection Closing

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- Where are we now?
  - ▶ Completed initial target data collection for fixed ignition sources
  - ▶ Finalizing PRA target selection for transient ignition sources
  - ▶ Performing ZOI refinement
  - ▶ Scenario selection and fire modeling using simple tools as a first cut
- What's next?
  - ▶ Use risk input to have a focused approach on more detailed and complex modeling efforts

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Questions?

Comments?

Concerns?