

Risk-Informed, Performance-Based Fire Protection Rulemaking: Industry Views

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Risk-Informing Fire Protection Regulations

- Industry supports this
- Considerations
 - Must be optional, not mandatory
 - Should be structured (methods clearly understood by regulator and licensees)
 - Should provide for performance-based methods
 - Should not increase burden on regulator and licensees



Options

- Rulemaking
- Revision to existing regulatory guidance



RI/PB Fire Protection Rulemaking

- Proposed NRC rulemaking
 - Allow licensees to adopt NFPA 805 as an optional alternative licensing basis
 - Industry believes NFPA 805 in current form will not provide useful alternative licensing basis



RI/PB Fire Protection Rulemaking

- NRC requested industry provide
 - Changes (exceptions to NFPA 805) needed for rulemaking to go forward
 - Concerns with NFPA 805
 - Implementation guidance issues



Industry Proposals

- Industry will provide
 - Exceptions to NFPA 805 that must be addressed explicitly in the rule
 - Significant barriers to implementation that should be addressed in language of rule
 - Clarifications that should be provided in implementing guidance
- Comments based on current revision of NFPA 805



Exceptions Needed for Rulemaking to Proceed

- Exception must be stated explicitly in the language of the rule
 - Addressing exception only in implementing guidance is not adequate
 - Additional explanatory information in implementing guidance may be useful



Required Exceptions (1)

- Rule must state that its application is optional by any licensee



Required Exceptions (2)

- Chapter 3
 - Performance-based approaches needed for the fundamental elements in Chapter 3
 - Existing licensing bases constitute previously approved alternatives from the fundamental elements



Required Exceptions (2)

- Exception to Section 3-1 to read:

“General: This chapter contains the fundamental elements of the fire protection program and specifies the minimum design requirements for fire protection systems and features. *Performance-based approaches may be applied to the fire protection program elements and minimum design requirements in this chapter. Fire protection elements described in the existing licensing basis take precedence over the requirements contained herein. If previously approved licensing bases do not address specific fire protection program elements and design requirements in this chapter, performance-based approaches may be applied to these elements and requirements as described above.*”



Required Exceptions (3)

- Exception to Section 2.4.2 to read (revision of appropriate sentence):

“Other performance-based or risk-informed methods acceptable to the authority having jurisdiction, *including NEI 00-01 when approved by the AHJ*, shall be permitted.”



Significant Barriers to Implementation

- These are provisions in NFPA 805 that:
 - May be desirable, but
 - Not expected to significantly increase safety over current regulations
 - Would require a considerable investment of licensee resources to implement
- Examples, not exhaustive list



Significant Barriers to Implementation (1)

- 1.1 - Modes of operation
 - Requirement to consider all modes of operation
- Chapter 3 (aggregate)
 - These become significant barriers if the proposed change to Section 3-1 not adopted



Significant Barriers to Implementation (2)

- Availability of plant fire PSA to support risk approaches a barrier for many plants
- Constraints to using deterministic approaches
 - 4.2.3.1 - Recovery actions
 - 2.7.3.5 - Uncertainty analysis
 - 2.2.4 - Change evaluation
 - 4.2.3.2 - 3-hour barriers



Significant Barriers to Implementation

- Conclusions on damage thresholds
 - Insufficient data available to support utility implementation (analysis)
- Existing exemptions and deviations subjected to reanalysis
- Other barriers will be provided in list to be mailed to NRC staff



Implementing Guidance Required

- Guidance on what constitutes acceptability to the AHJ (many locations)
 - Threshold of prior approval
 - Risk acceptance criteria
 - Acceptable fire models
 - Acceptable PSA methods



Implementing Guidance Required

- 2.4.1.3 - Guidance for determining maximum expected and limiting fire scenarios (result of pilot evaluation)
- Bundling of risk changes to more than one fire area (result of pilot evaluation)



Other Implementation Issues

- Treatment of exceptions
- Treatment of other issues
- Regulatory guide and implementation guidance development
 - Responsibility
 - Schedule
 - Regulatory/industry interaction



Another Option

- Revise existing regulatory guidance to provide regulatory structure for making risk tools (NFPA 805 and others) available for licensee use

