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Draft Final Regulatory Guide 1.205, Revision 1

ACRS PRA Subcommittee

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Introduction

- DRA has prepared guidance documents for plants adopting a risk-informed, performance-based fire protection program using NFPA 805
    - RG 1.205, Rev. 1
    - SRP 9.5.1.2 (new section)

- Presentation to ACRS subcommittee on 6/1/09
    - Overview of changes to the RG
    - Overview of SRP content
    - Anticipated public comments

- Public comments have been received and addressed

Briefing Objectives

- Present final version of RG 1.205, Rev. 1

  - Key public comments received

  - Staff resolution

- Obtain ACRS recommendation that the full committee endorse RG 1.205, Rev. 1

- Request ACRS waive review of new SRP 9.5.1.2 based on congruence with the RG

Public Comment Topics

- Fire Probabilistic Risk Assessment (PRA)
  - Comments on Methods
  - Comments on Models and Risk Evaluations

- Sample License Condition

- Recovery Actions (RAs)
  - Comments from Public
  - Treatment of Previously Approved Recovery Actions

Note that comments were only received from industry and the National Fire Protection Association.

Fire PRA – Methods

- Public Comments
  - Clarify how to meet the NFPA 805 requirement that methods be "acceptable to the AHJ"
  - Limit discussion of fire PRA methods to the "cause/effect" relationship
  - Do not limit methods to those in "topical reports"

NEI general comments 1 and 3; comments 22, 45, 47, 56, 57, 74, and 75; GE Hitachi comment 2

Fire PRA – Methods (continued)

- **NRC Response**
  - Significant changes to DG-1218 Regulatory Positions 2.2.3, 2.2.4, 3.1, 3.2.3, 3.2.4, 4.2, and 4.3
  - Licensee may model cause/effect relationship with methods
    - That have been used in the peer-reviewed baseline PRA;
    - That have been endorsed by NRC through a license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments; or,
    - That have been demonstrated to bound the risk impact.

NEI general comments 1 and 3; comments 22, 45, 47, 56, 57, 74, and 75; GE Hitachi comment 2

Fire PRA – Models & Risk Evaluations

- Public Comments
  - Provide guidance on fire PRA model updates and upgrades after transition
  - Provide clear fire PRA submittal guidance
  - Clarify when plant change evaluations are required

- NRC Response
  - Updated RG Section 4.3 to reference RG 1.200 and the ASME/ANS PRA Standard
  - RG changed to discuss both plant change evaluations and fire risk evaluations explicitly

NEI comments 14, 17, 25, 27, 35, 58, 71, and 73; GE Hitachi comment 6

Fire PRA – Models & Risk Evaluations
(continued)

- Public Comments
  - Do not evaluate the total change in risk associated with implementation of NFPA 805 using RG 1.174
  - There is no valid basis to track cumulative risk

- NRC Response
  - Total change comment partially addressed
    - Guidance related to calculation and assessment of total change in risk has been clarified (more on slide 12)
    - RG 1.174 still provides acceptance guidelines
  - Last comment not incorporated – NFPA 805 requires consideration of cumulative risk

NEI comments 14, 17, 25, 27, 35, 58, 71, and 73; GE Hitachi comment 6

Sample License Condition

- Public Comments
  - The transition license conditions would preclude self-approval of changes before full implementation

- NRC Response
  - RG changed to allow changes that clearly do not increase risk and changes using non-risk, performance-based methods allowed in the license condition

NEI comments 17 and 45

Recovery Actions (RAs)

- **Public Comments**
  - Clarify which recovery actions need to be included in the *plant change evaluation*
  - Limit scope of recovery actions requiring a risk evaluation
  - The benefit of defining *primary control station* is not evident
  - Previously approved recovery actions should be deemed to meet the deterministic requirements of NFPA 805, Section 4.2.3

NEI comments 17, 25, 26, 35, 38, 41, 42, and 43; GE Hitachi comment 1
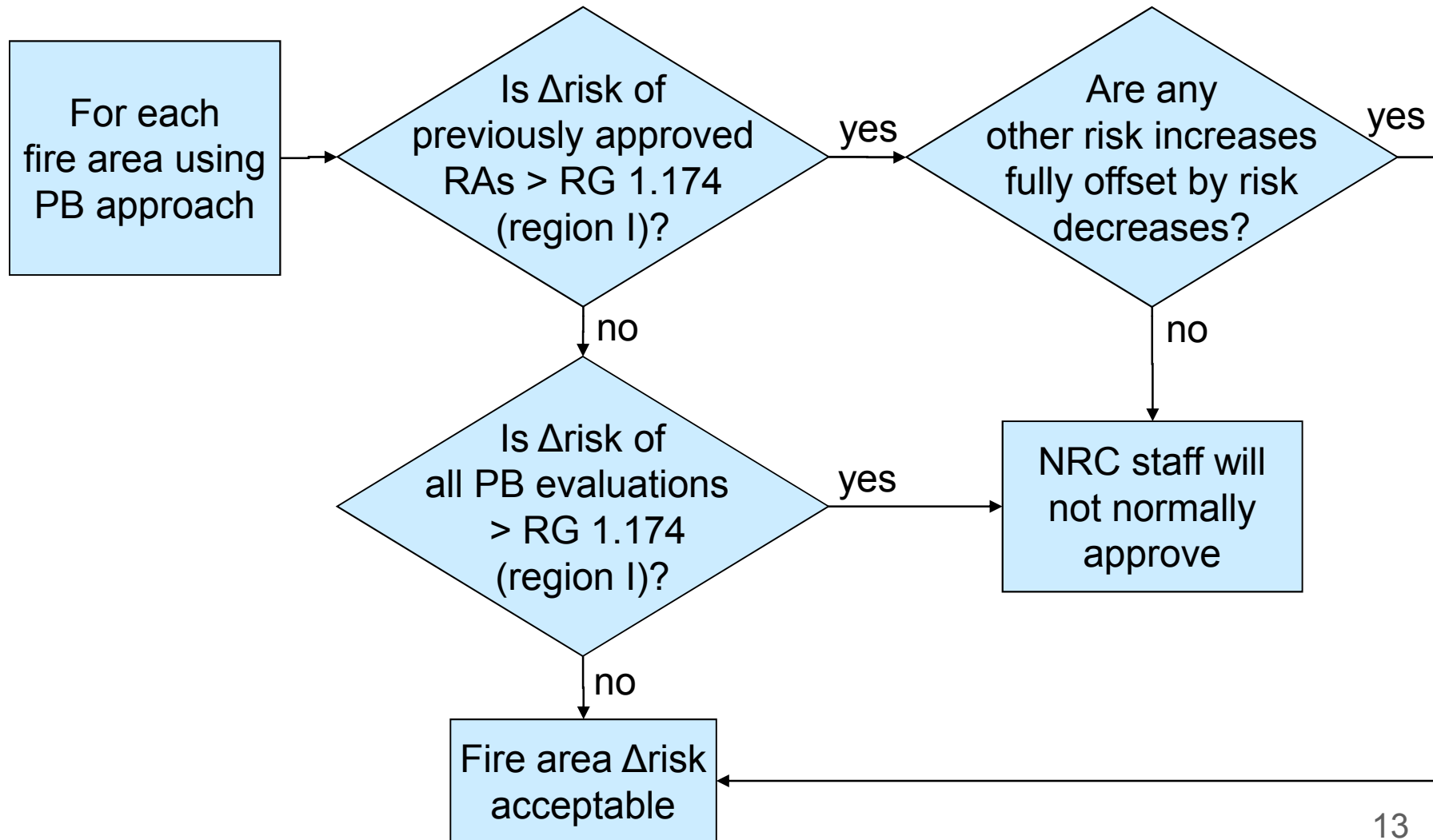
Recovery Actions (continued)

- **NRC Response**
  - RG clarified regarding recovery actions
    - When used in plant change evaluations
    - Scope limited per NFPA 805 §4.2.3.1
  - Definition of primary control station improved
    - Reduced burden for dedicated or alternative shutdown panels that meet certain requirements
    - Added in certain recovery actions where significant risk may exist (e.g., manual valve in lieu of protecting MOV – would be a recovery action)
  - The NRC staff does not agree that previous approval implies deterministic compliance (next slide)

NEI comments 17, 25, 26, 35, 38, 41, 42, and 43; GE Hitachi comment 1

Previously Approved RAs

- Latest RG 1.205, Rev. 1 guidance
  - Additional risk (ΔCDF; ΔLERF) of recovery actions must be evaluated
  - The risk is acceptable based on previous approval*
  - This additional risk is considered when evaluating the acceptability of other, proposed risk contributions when using the performance-based approach
    - Acceptance guidelines of RG 1.174 will be used
    - If additional risk from previously-approved RAs is above acceptance guidelines, any other use of risk-informed approaches must not increase risk (i.e., proposed risk increases would have to be offset by proposed risk decreases)

*Unless circumstances indicate that a backfit under 10 CFR 50.109 is warranted on an adequate protection or cost-beneficial safety improvement basis.

Application of RG 1.174 to NRC Staff Review (by Fire Area)

For each fire area using PB approach

Is Δrisk of previously approved RAs > RG 1.174 (region I)?

— yes → Are any other risk increases fully offset by risk decreases?

— no ↓

Is Δrisk of all PB evaluations > RG 1.174 (region I)?

— yes → NRC staff will not normally approve

Are any other risk increases fully offset by risk decreases? — yes → Fire area Δrisk acceptable

Are any other risk increases fully offset by risk decreases? — no → NRC staff will not normally approve

Is Δrisk of all PB evaluations > RG 1.174 (region I)? — no → Fire area Δrisk acceptable

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Previously Approved RAs (continued)

- Latest RG 1.205, Rev. 1 guidance (continued)
  - After transition, the plant change evaluation applies
  - Baseline risk for use in performing plant change evaluations will be the risk of the plant as-built and as-operated and maintained, according to the NRC-approved FPP licensing basis
  - However, the NRC staff will consider the additional risk associated with recovery actions that were "carried over" based on "previous approval" in determining the acceptability of the requested change

RG and SRP Schedule

- Out for public comment
  - SRP: February 5, 2009
  - RG: March 25, 2009

Comment Periods Closed:
  - SRP & RG: May 22, 2009

- ACRS Subcommittee Briefings in June and August

- CRGR review in July, 2009

- ACRS Full Committee scheduled for September, 2009

- Estimate final SRP and RG by December, 2009

Questions?