Discussion of NRC Comments on Revision 1 to NEI 07-12, "Fire Probabilistic Risk Assessment Peer Review Process Guidelines"

Mary Drouin, Office of Nuclear Regulatory Research
JS Hyslop, Office of Nuclear Regulatory Research
Donnie Harrison, Office of Nuclear Reactor Regulation
Ray Gallucci, Office of Nuclear Reactor Regulation

January 6, 2011

Agenda

9:00 am	to	9:15 am	Introduction, NRC
9:15 am	to	9:45 am	NRC overview of concerns
9:45 am	to	10:00 am	BREAK
10:00 am	to	11:45 am	NEI presentation and open discussion
11:45 am	to	12:00 pm	Wrap-up, NRC
12:00 pm			Adjourn

Category 2 public meeting

Purpose of Meeting

- Discuss NRC comments/concerns with Revision 1 of NEI 07-12 and receive feedback from NEI
- Understand how NRC's concerns are to be addressed in the peer reviews

Publication of NEI 07-12, Revision 1

- Received from NEI on July 30, 2010
- NEI noted that:
  - Revision 1 aligns with ASME/ANS RA-Sa-2009, Addendum A to the standard
  - It is being used in the conduct of all FPRA peer reviews
  - "As these revisions focus on the peer review process rather than the technical aspects of peer review of FPRAs against ASME/ANS RA-Sa-2009, NEI does not believe that NRC endorsement of NEI 07-12, Revision 1 is necessary"
- NRC has concerns with some of the changes

Overview of NRC Concerns

- Revision 1 of NEI 07-12 does not address the two qualifications and the clarifications from Regulatory Guide (RG) 1.200
- Section 2.2: several relaxations in the peer reviewer team's experience requirements are allowed
  - Earlier version of NEI 07-12 indicated that certain experience was *required*; current version indicates that particular experience is *expected or desired*
  - Experience in detailed circuit analysis and fire modeling has also been downgraded

Overview of NRC Concerns (cont'd) Background

- Table D-1 of RG 1.200, Revision 2
  - Section 2.2, Footnote 5, Clarification
    - Additionally, a ***directly applicable*** advanced degree in Engineering/Science/ Mathematics can be counted towards years of experience
  - Section 2.1, 6th para, Clarification
    - The utility can request particular expertise beyond the general expertise identified in . . . . the ASME/ANS RA-Sa-2009 standard ***(and considering the staff's position in Regulatory Guide 1.200)*** for the Peer Review Team, where more specialized skills are needed.
  - Section 3.2, 12th para, Clarification
    - In documenting the F&Os, it is important to note that the reviewers need not ***always*** match F&Os to SRs one-to-one. ***For example***, F&Os on common SRs that cross several PRA Technical Elements should be combined into a single F&O (i.e. uncertainty, ...

Overview of NRC Concerns (cont'd)

- Table D-1 of RG 1.200, Revision 2 (cont'd)
  - Section 3.2, 14th para, Qualification
    - ***While Section 1-6.1 of the ASME/ANS PRA standard states that not all aspects of the PRA need be assessed, this statement is intended to limit how much of the model needs be considered when determining whether an SR or HLR is met. The SRs form the basis for determining whether the related HLR is met, and every SR in the HLR should be assessed by the review team.***
  - Section 3.3, 2nd para, Qualification
    - The major benefits of the review process, ~~however, is not~~ ***are*** the SR assignments, ~~but rather~~ ***as well as*** the recommendations for improvements and the acknowledgements. . . .

Overview of NRC Concerns (cont'd) Background

- Section 2.2:
  - "Experience *Expectations* for Individual Peer Review Team members ... Additional Experience *Expectations* for the Team as a whole ...Specialized expertise in fire modeling or detailed circuit analysis *should be strongly considered* ..."

Overview of NRC Concerns (cont'd)

- Section 3.2, pg. 25: a new type of F&O, "Unreviewed Analysis Method," is defined
  - F&O should include an explanation of the context for these unreviewed methods
  - Each cited F&O should indicate if the results from the applied method are important to the fire PRA
  - F&O should also provide exactly what aspect of the method is unreviewed
    - It should be noted that the peer review is not complete until the Unreviewed Analysis Method F&O has been addressed
      - A subsequent focused peer review will be required
      - This process needs to be addressed in NEI 07-12 (including Industry Fire PRA Methods task force)

Overview of NRC Concerns (cont'd) Background

- Section 3.2, pg. 25:
  - "Unreviewed Analysis Method – an observation regarding the use of methods unfamiliar to the review team. Such an observation is appropriate when the review team does not possess the expertise necessary to evaluate the technical adequacy of the methods used in the FPRA. [The industry is forming an expert review panel that will evaluate Unreviewed Analysis Method F&Os to assist utilities in dispositioning these items.]"

Overview of NRC Concerns (cont'd)

- Section 3.2, pg. 24: indicates that the analysis of the physical analysis units (PAUs) might be incomplete when the peer review is performed
  - The analysis should be complete at the time of the peer review; unanalyzed PAUs should be the exception (vs. "just" a minority)
  - Assessment of SR CCs for unanalyzed PAUs is acceptable if:
    - Reviewed methods will be used to assess unanalyzed PAUs; AND
    - The results from subsequent analysis of these PAUs will not change the assessment for any potentially affected SRs
  - F&Os for methods already applied in the fire PRA would carry over to any uncompleted PAUs as appropriate (e.g., if same methods will be applied to those PAUs)

Overview of NRC Concerns (cont'd) Background

- Section 3.2, pg. 24:
  - ". . . when the analysis is incomplete for multiple physical analysis units. In these cases, if the analysis that is complete is performed in a manner that meets the appropriate SRs of the ASME/ANS PRA Standard, a single F&O referencing the applicable SRs should be issued stating that the incomplete analysis needs to be completed. Preponderance of the evidence. . . . should be the criterion for assigning the Capability Category. For example, if the SR(s) for the completed analysis meets CC II and the majority of the analysis is complete, assigning CC II for that SR(s) may be appropriate."

Overview of NRC Concerns (cont'd)

- Section 3.3.1, pg. 29: No longer states that an F&O (Finding) should be written for an SR receiving less than a CC II assessment
  - While an F&O *may* be written for an SR regardless of the CC assessment, there should be a requirement that a Finding be written for an assessment of CC I or "not met"
- Section 2.1, pg. 15: While the need to review closed FAQs is no longer explicitly required (Step 3), it should be stated that reviewers are required to be knowledgeable of all closed FAQs when dispositioning SRs for which these FAQs are relevant.

Overview of NRC Concerns (cont'd) Background

- Section 3.3.1, pg. 29:
  - "If the utility chooses to be reviewed against CC I for a given SR, an F&O *need not be written* for those SRs if assessed as CC I. Further, it is important to note that the team *may* write an F&O regardless of the CC assessment for a given SR."
- Section 2.1, pg. 15, Step 3:
  - No longer included as in Rev. 0 – "Additionally, the review also includes a review of closed Frequently Asked Questions (FAQs) associated with Fire PRA methods. These FAQs are available from either NEI or on NRC ADAMS."
    - Also, now available as NUREG/CR-6850, Supp. 1 (EPRI 1019259)

STAKEHOLDER PRESENTATIONS

Wrap UP

- Since staff relies on industry peer reviews, high quality peer reviews are needed
- Staff plans to provide its endorsement of Revision 1 of NEI 07-12
- Fire PRA peer reviews need to align with staff position in RG 1.200, Revision 2
- Guidance on process to be used by the industry task force, and subsequently by the licensee, needs to be developed and published