Generic RAIs – Non-Pilot Topics

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6	Fire PRA Quality (ML113210461-Slide 16) – Inconsistent use of terms was the main concern (focused scope peer review, gap assessment, etc.)	The NFPA 805 TF will work with the Fire PRA TF to clarify terminology and update the LAR template, as necessary (Att. U, V).	11/18/11 Meeting ML113210461 ML113340218	Added "Note to LAR Developer" to Tables U-1 and V-1 that discusses closure of F&Os, treatment of suggestion F&Os, and adequate documentation of F&O resolution. Revise the LAR template to add a note to LAR developer in Appendix U and V regarding clear and appropriate use of PRA terminology: •Follow-on peer review: Occurs after the initial model peer review. Will cover the set of HLRs and SRs for the applicable FPRA technical elements in Section 4-2 of the ASME/ANS PRA Standard. May be focused scope or full scope (see NEI 07-12). It is suggested that this term not be used in LARs, and that focused-scope or full-scope always be specified. •Focused scope peer review (preferred language vs. limited scope peer review): Limited…to only the SRs that are germane to a specific FPRA upgrade (e.g. re-evaluation of circuit failure probabilities) (see NEI 07-12). All technical elements affected by the upgrade should be included. Also see the definition in Section 1-6 of the ASME/ANS PRA Standard taking the exceptions to Sections 1-6.2.4(c) and 1-6.2.4(d) as described in RG 1.200. The scope of the review may be limited to individual elements and the relevant results of past peer reviews can be replaced with the results of the most recent peer review. •Gap assessment: See NEI 07-12 "If the most recent Internal Events PRA Peer Review was performed against an older version of the ASME/ANS PRA Standard and RG 1.200 (prior to Addendum B or Revision 0 of the Standard), a gap assessment is needed to assess whether the Internal Events PRA meets the latest NRC-endorsed ASME/ANS PRA Standard, per the guidance in NEI 05-04." In other words, the gap assessment is not a peer review, and simply involves an assessment of the relevant changes in RG 1.200 and/or the ASME/ANS PRA Standard since the conduct of the peer review followed by an assessment of the PRA against those differences. This will generally be conducted by the model owner, but could be conducted by an outside entity. If a gap assessment is referenced in the LAR, the version of the document against which the gap assessment is performed should be clearly stated, as should the entity conducting the assessment. •Self-assessment: The host utility should perform a self-assessment against the guidance in this document and the FPRA Part of the Standard (see Section A.3.2). This self-assessment will help identify any known issues with the existing FPRA, and allow the utility a chance to either correct any issues or to disposition any self-assessment F&Os. (see NEI 07-12). These assessments are done by the model owner, not by an outside entity. •Full scope peer review: A peer review of the PRA as defined in Section 1-6 of the ASME/ANS PRA Standard, considering exceptions in RG 1.200, during which all elements of the relevant portion of the standard are reviewed. •F&O – Fact and Observation, a key point noted by the peer review team. The issue documented may be a weakness (finding), a strength (best practice), a simple observation (suggestion), or one regarding methods unfamiliar to the team (unreviewed analysis method). (See NEI 07-12) •Finding – an observation (an issue or discrepancy) that is necessary to address to ensure: the technical adequacy of the PRA (relative to a Capability Category), the capability/robustness of the PRA update process, or the process for evaluating the necessary capability of the PRA technical elements. •UAM – 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 methods used in the FPRA. (see NEI 07-12) •Deviation from NRC-Accepted Fire PRA Methods ~~for NFPA 805 Applications~~ – An approach, method, or data, which is unique to Fire PRA ~~and specific to 10 CFR 50.48(c)~~, that differs from that explicitly described in NRC-accepted documents related to FPRA methods.

Comment [A1]: The NRC accepts that these definitions are most effectively limited to fire PRAs, but maintains that the definition should not be limited to NFPA-805 applications. NRC has had to clear up industry misperceptions that the fire PRA methods issues raised for NFPA 805 are limited to NFPA 805 applications, and does not want to propagate that misperception in any way.

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14	Treatment of FPRA Unreviewed Analysis Methods (UAMs) (ML113210461-Slide 61).	Industry needs clear understanding of how UAMs are treated and closed out.	11/18/11 Meeting ML113210461 ML113340218	UAMs are addressed by sensitivity studies comparing the results obtained with the model as-is with results obtained using an accepted method. NRC expectations on this topic were discussed at the 7/24/12 management meeting and are documented in the meeting summary (ML122200690). Fire PRA Task Force has lead on this topic. Revise the LAR template to add a note to LAR developer in Appendix V regarding addressing UAMs: The peer review report may include Unreviewed Analysis Method (UAM) level findings. Per NEI 07-12, a UAM is "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 methods used in the FPRA." Should there be any such UAM-level F&Os in the final FPRA peer review report, they should be addressed as follows in the LAR: • The text associated with the UAM-level F&O should be reported. • The UAM-level F&O should be closed out by referencing written acceptance of the relevant method by the NRC. • If such a written acceptance is not available, appropriate sensitivity studies (see RG 1.174) should be conducted. UAMs are addressed by sensitivity studies comparing results obtained with the model as-is with results obtained without using the deviation from NRC-accepted Fire PRA methods ~~for NFPA 805 applications.~~
15				

Comment [A2]: See comment 1

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16	FPRA - Sensitivity study on CPT factor 2. It was recently stated at the industry fire forum that the Phenomena Identification and Ranking Table Panel being conducted for the circuit failure tests from the DESIREEFIRE and CAROL-FIRE tests may be eliminating the credit for Control Power Transformers (CPTs) (about a factor 2 reduction) currently allowed by Tables 10-1 and 10-3 of NUREG/CR-6850, Vol. 2, as being invalid when estimating circuit failure probabilities. Provide a sensitivity analysis that removes this CPT credit from the PRA and provide new results that show the impact of this potential change on CDF, LERF, □CDF, and □LERF. If the sensitivity analysis indicates that the change in risk acceptance guidelines would be exceeded after eliminating CPT credit, please justify not meeting the guidelines.		DAEC, Cook, Callaway RAIs, Waterford "generic" RAIs (#9)	New item discussed at 3/22/12 TF meeting. 6/28/12 – Additional discussion needed on how to treat this Fire PRA topic (not necessarily as a LAR template item). NEI to work on how to treat Fire PRA topics likely to get extensive reviews/RAIs. NRC expectations on sensitivity studies were discussed at the 7/24/12 management meeting and are documented in the meeting summary (ML122200690). Fire PRA Task Force has lead on this topic. No revision to the LAR template suggested, however, the following is offered as a potential solution which applicants may consult if they receive this RAI. In response to the RAI, the fire PRA model and associated application calculations were updated to apply the higher conditional probability values. The result of this sensitivity study shows a CDF increase of approximately x % and an increase in the change in plant risk associated with the application of approximately y%. <then chose one of the following> These increases do not result in any of the risk metrics to exceed the acceptance thresholds described in (reference section of LAR). <or> These increases result in the (pick which metric) to be slightly above the acceptance threshold described in (reference section of LAR). However, the application is still judged to be acceptance because ... (provide justification). <or> These increases result in the (pick which metric) to be above the acceptance threshold described in (reference section of LAR). This insight resulted in the identification of (additional DID or plant modification) that will be implemented (update to Appendix S may be required) that will address this potential. ***NOTE: subject of forthcoming FPRA FAQ**

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17	Please describe how your evaluation includes the possible increase in heart (sic) release rate caused by the spread of a fire from the ignition source to other combustibles. Please summarize how suppression is included in your evaluation.		Waterford "generic" RAIs (#1)	This is addressed by SRs within the PRA Standard. 6/28/12 – Additional discussion needed on how to treat this Fire PRA topic (not necessarily as a LAR template item). NEI to work on how to treat Fire PRA topics likely to get extensive reviews/RAIs. Fire PRA Task Force has lead on this topic. No revision to the LAR template suggested. Licensees who receive this RAI should explain how the issue is addressed, and supplement this description by referencing the peer review capability category assignments for FSS-C1, FSS-C2, and FSS-C4. and address the resolution of any findings associated with these SRs.

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18	Transient fires should at a minimum be placed in locations within the plant PAUs where CCDPs are highest for that PAU, i.e., at "pinch points." Pinch points include locations of redundant trains or the vicinity of other potentially risk-relevant equipment, including the cabling associated with each. Transient fires should be placed at all appropriate locations in a PAU where they can threaten pinch points. Hot work should be assumed to occur in locations where hot work is a possibility, even if improbable (but not impossible), keeping in mind the same philosophy.		Waterford "generic" RAIs (#2)	This is addressed by SRs within the PRA Standard. 6/28/12 – Additional discussion needed on how to treat this Fire PRA topic (not necessarily as a LAR template item). NEI to work on how to treat Fire PRA topics likely to get extensive reviews/RAIs. Fire PRA Task Force has lead on this topic. No revision to the LAR template suggested. Licensees who receive this RAI should explain how the issue is addressed, and supplement this description by referencing the peer review capability category assignments for IGN-A9 and FSS-A5 and address the resolution of any findings associated with these SRs. ***NOTE: subject of forthcoming FPRA FAQ**

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19	Discuss the calculation of the frequencies of transient and hot work fires. Characterize your use of the influence factors for maintenance, occupancy, and storage, noting if the rating "3" is the most common, as it is intended to be representative of the "typical" weight for each influence factor.		Waterford "generic" RAIs (#3, 4)	This is addressed by SRs within the PRA Standard. 6/28/12 – Additional discussion needed on how to treat this Fire PRA topic (not necessarily as a LAR template item). NEI to work on how to treat Fire PRA topics likely to get extensive reviews/RAIs. FAQ 12-0064 addresses this topic. Fire PRA Task Force has lead on this topic. No need for revision to the LAR template. This is addressed in existing parts of the LAR including the peer review report. ***NOTE: subject of 805 FAQ**

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20	Section 10 of NUREG/CR-6850 Supplement 1 states that a sensitivity analysis should be performed when using the fire ignition frequencies in the Supplement instead of the fire ignition frequencies provided in Table 6-1 of NUREG/CR-6850. Provide the sensitivity analysis of the impact on using the Supplement 1 frequencies instead of the Table 6-1 frequencies on CDF, LERF, □CDF, and □LERF for all of those bins that are characterized by an alpha that is less than or equal to one. If the sensitivity analysis indicates that the change in risk acceptance guidelines would be exceeded using the values in Table 6-1, please justify not meeting the guidelines.		Waterford "generic" RAIs (#7)	NRC expectations on this topic were discussed at the 7/24/12 management meeting and are documented in the meeting summary (ML122200690). Fire PRA Task Force has lead on this topic. No need for revision to the LAR template. This is addressed in existing parts of the LAR. Clarify with NRC staff that Supplement 1 is considered an "accepted method." Licensees should note that, in some cases, such as with NFPA 805 FAQ 48, sensitivity studies are part of the accepted solution and should accompany the LAR.

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21	Please describe how CDF and LERF are estimated in main control room (MCR) abandonment scenarios. Do any fires outside of the MCR cause MCR abandonment because of loss of control and/or loss of control room habitability? Are "screening" values for post MCR abandonment used (e.g., conditional core damage probability of failure to successfully switch control to the Primary Control Station and achieve safe 3 shutdown of 0.1) or have detailed human error analyses been completed for this activity. Please justify any screening value used.		Waterford "generic" RAIs (#8)	This is addressed by SRs within the PRA Standard. 6/28/12 – Additional discussion needed on how to treat this Fire PRA topic (not necessarily as a LAR template item). NEI to work on how to treat Fire PRA topics likely to get extensive reviews/RAIs. Fire PRA Task Force has lead on this topic. No revision to the LAR template suggested. Licensees who receive this RAI should explain how the issue is addressed, and supplement this description by referencing the peer review capability category assignments for FSS-B1, FSS-B2, and HR-G1 and address the resolution of any findings associated with these SRs. **NOTE: subject of forthcoming FPRA FAQ**

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22	Attachment W of the LAR provides the ..CDF and ..LERF for the variances from the deterministic requirements (VFDRs) for each of the fire areas, but the LAR does not describe either generically or specifically how ..CDF and ..LERF were calculated. Describe the method(s) used to determine the changes in risk reported in the Tables in Appendix W. The description should include: a) A summary of PRA model additions or modifications needed to determine the reported changes in risk. If any of these model additions used data or methods not included in the fire PRA Peer Review please describe the additions. b) Identification of new operator actions (not including post MCR abandonment which are addressed elsewhere) that have been credited in the change in risk estimates. If such actions are credited, how is		Waterford "generic" RAIs (#10)	This is a candidate for revision to LAR template. Added section to Attachment W. LAR Template Rev. 1O (Aug. 2012) changed the NOTE TO LAR DEVELOPER Section W.2.1 to cross reference Generic RAIs 22 and 24 related to methods used to calculated change in risk. Fire PRA Task Force has lead on this topic. LAR template already revised to note that any changes following the peer review need to be noted.

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23	Did the peer reviews for both the internal events and fire PRAs consider the clarifications and qualifications from Regulatory Guide (RG) 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ADAMS Accession No. ML09041 0014) to the ASME/AMS PRA Standard? If not, provide a self-assessment of the PRA model for the RG 1.200 clarifications and qualifications and indicate how any identified gaps were dispositioned.		Waterford "generic" RAIs (#11)	Added the following note to LAR Developer in Attachment U: LAR Template Rev. 1O (Aug. 2012) includes in NOTE TO LAR DEVELOPER Attachment U to provide a general discussion of the standards against which the Internal Events PRA has been reviewed. Ensure that RG 1.200 Revision 2 has been considered for the fire PRA peer review, including the internal events model on which it is based. 6/28/12 – NRC questioned RG 1.200 Rev. 2 for fire and asked to ensure guidance in LAR template addressed fire. Fire PRA Task Force has lead on this topic. A note regarding this has already been added to the LAR template.

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24	Identify if any variance from deterministic requirement (VFDRs) in the LAR involved performance-based evaluations of wrapped or embedded cables. If applicable, describe how wrapped or embedded cables were modeled in the Fire PRA including assumptions and insights on how the PRA modeling of these cables contributes to the VFDR delta risk evaluations.		Waterford "generic" RAIs (#12)	See item 22. LAR Template Rev. 1O (Aug. 2012) changed the NOTE TO LAR DEVELOPER Section W.2.1 to cross reference Generic RAIs 22 and 24 related to methods used to calculated change in risk. Fire PRA Task Force has lead on this topic.

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26	Please identify any changes made to the internal events or fire PRA since the last full scope peer review of each of these PRA models that are consistent with the definition of a "PRA upgrade" in ASME/ANS-RA-Sa-2009, as endorsed by Regulatory Guide 1.200. Also, please address the following: i) If any changes are characterized as a PRA upgrade, please identify if a focused scope peer review was performed for these changes consistent with the guidance in ASME/ANS-RA-Sa-2009, as endorsed by Regulatory Guide 1.200, and describe any findings from that focused-scope peer review and the resolution of these findings for this application. ii) If a focused-scope peer review has not been performed for changes characterized as a PRA upgrade, please describe what actions will be implemented to address this review deficiency.		Waterford "generic" RAIs (#14)	This is a candidate for revision to LAR template. LAR Template Rev. 1O (Aug. 2012) includes in NOTE TO LAR DEVELOPER Attachment U to a discussion of this topic. Fire PRA Task Force has lead on this topic. Add a note to the LAR template as follows: If the internal events PRA or fire PRA has been changed since the peer review, the differences between the current model and the model as last peer reviewed should be given in the LAR. If an upgrade has been done since the most recent peer review, a focused scope peer review should be completed prior to the submittal of the LAR.

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27	During the 5/24/12 public meeting the NRC asked that the licensee identify deviations from NUREG/CR 6850 methods including those that involve justifications.	The staff has noticed that this has been treated inconsistently in the submittals.		NRC expectations on this topic were discussed at the 7/24/12 management meeting and are documented in the meeting summary (ML122200690). NUREG/CR-6850 is not the only source of approved methods which can be used instead of reporting a deviation. Fire PRA Task Force has lead on this topic. See Generic RAI 6 for definition of deviation from NRC-accepted fire PRA methods ~~for NFPA 805 applications~~.
30	Clarification needed on risk and delta risk criteria related to credit for modifications, additional risk of recovery actions		6/27/12 Public Meeting PRA Slides (Slide 5)	Need additional discussion with NRC on this topic. Candidate for LAR template revision after clarification obtained and agreed upon. Fire PRA Task Force has lead on this topic. Change Attachment W of LAR template to reflect that CDF, LERF, delta CDF, and delta LERF should be discussed. Request clarification from staff on specific areas of concern.
32	Basis for Assumptions in Fire PRA with respect to fire scenarios		Cooper Draft RAIs, other	

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