

Industry Proposal for Implementation of New Methods and Data, Including 2014 Ignition Frequencies

- Problem Statement
 - The NRC and industry have had discussions regarding the schedule for integration of new data or methods, such as heat release rates and ignition frequencies, into licensee Fire PRAs, and the industry has proposed that this be done via the normal maintenance and update process. ~~As the PRA Configuration Control program describes. This Program will ensure that such new information is integrated as appropriate, regardless of whether the change in risk is an increase or a decrease.~~
 - All licensees transitioning to NFPA 805 support their applications with a Fire PRA that is peer reviewed using NRC-endorsed standards and guidance.
 - This peer review involves, in addition to a thorough technical review, a review of the PRA maintenance procedures against the requirements in the NRC-endorsed ASME/ANS PRA Standard.
 - The results of the peer review, including facts and observations related to the PRA maintenance procedures, are available for NRC review, and are closely evaluated during the NRC NFPA 805 audit.
 - Any new information relevant to the licensee's Fire PRA, including new methods or data, is ~~introduced into the PRA reviewed~~ using the licensee's process, ~~the process being as~~ evaluated in the peer review. ~~Licensees will indicate in the LAR whether new information is used.~~
 - The below proposal applies, in general, to new information relevant to Fire PRA, including the new ignition frequencies.
- ASME/ANS PRA Standard Requirements for PRA Configuration Control
 - Requirements are provided in Section 1-5; relevant portions are provided below.
 - 1-5.2: A PRA Configuration Control Program shall be in place. It shall contain the following key elements: (a) a process for monitoring PRA inputs and collecting new information
 - 1-5.3: The PRA Configuration Control Program shall include a process to monitor changes in the design, operation, maintenance, and industry-wide operational history that could affect the PRA...The program should include monitoring of changes to the PRA technology and industry experience that could change the results of the PRA model.
 - 1-5.4: Changes in PRA inputs or discovery of new information identified pursuant to 1-5.3 shall be evaluated to determine whether such information warrants PRA maintenance or PRA upgrade...Changes that would impact risk-informed decisions should be incorporated as soon as practical.
 - 1-5.5: The PRA configuration control process shall consider the cumulative impact of pending plant changes or model improvements on the application being performed. The impact of these plant changes or model improvements on the results of the PRA and the decision under consideration in the application shall be evaluated in a fashion similar to the approach used in Section 1-3.
- Background on PRA maintenance and upgrades
 - While undergoing a PRA update, a utility's "cutoff" time for considering new data varies from 6 months prior to 6 months after the start of the PRA update.
 - Generally speaking, new data updates could take up to 8 months depending on the scope.
 - In undergoing a PRA upgrade, the "cutoff" time required for considering new methods is anywhere from the beginning of the upgrade period to 6 months after the start of the PRA upgrade.

Comment [A1]: This change is consistent with NEI markups to NRC expectations whitepaper

Comment [A2]: 1st sentence change is edit by NRC and is clearer to us. There is no intent to change the meaning of the sentence. 2nd sentence is addition by NRC and has not been agreed upon between NEI and NRC by previous versions or discussions. All other changes to this document are intended to capture previous comments and agreements between NRC and NEI.

- o The time required for a PRA upgrade can be anywhere from a few months to a few years depending on the complexity of the upgrade.
- o The scope of sensitivity studies largely depend on the scope of the upgrades. Because of this, changes can take anywhere from a few days to many months.
- o The time for completion with changes to several new methods or data incorporated into an update/upgrade/sensitivity study involves a small delay to potentially a 6 month delay. If a smaller delay occurs, it is usually from a large increase in devotion of man-hours towards it. For ~~interim~~ and periodic model updates, maintenance and update procedures use criteria of a greater than 10% change in the CDF or anywhere from a 1% to 20% change (increase or decrease) in the LERF. The licensee's periodic update process typically takes place every 3-5 years.
- These update processes ensure that new information is evaluated for inclusion in PRAs when there is a measurable impact on the results and applications.
- Consideration of new information for NFPA 805 plants
 - o There are two relevant mechanisms by which a licensee's process would call for an update that would involve consideration of the new information such as new methods or data.
 - The first is the NFPA 805 license condition calling for a licensee to, prior to transition to self-approval, update their PRA model to reflect the as-built, as-operated plant following NFPA 805 modifications. Licensees ~~should can~~ evaluate the impact of the new information, e.g. method and data updates, prior to completing the required requantification of the change-in-risk that is part of the verification that the change-in-risk associated with transition meets the RG 1.174 acceptance guidelines.
 - The second is the licensee's ~~periodic-PRA maintenance and~~ update process, as discussed above. Maintenance and update procedures use criteria of a greater than 10% change in the CDF or anywhere from a 1% to 20% change in the LERF to identify significant changes. Should the criteria be met, the PRA will be updated with the new information. Should the criteria not be met, then the PRA will not be updated, and the new information will be set aside until the next periodic update or application of the PRA, at which point it will be considered.
 - o Licensees who have not yet received self-approval ~~should can~~ evaluate new methods or data as part of the update process called for in the license condition.
 - o Licensees who have already fully transitioned to NFPA 805 can conduct this evaluation as part of their next periodic update. ~~Should self-approval be applied, the licensee will implement their PRA configuration control process according to RG 1.200 and Section 1-5 of the ANS/ASME PRA Standard.~~
 - o In the interim, a licensee's use of data and methods previously used to support NRC acceptance of the NFPA 805 LAR for review remains acceptable, and new information ~~will can~~ be considered at the appropriate time as described above.
- There are four phases of NFPA 805 transition, several which call for of the licensee to consider new information, e.g. ignition frequencies. ~~By and large, it is expected that~~ licensees will rely on the Configuration Control program as described in the ASME/ANS PRA Standard and as summarized above. Additionally, ~~the staff expects that,~~ during an update, all relevant new information should be considered by the licensee in the determination of whether the aggregate analysis results meet the acceptance guidelines.
 - o The first phase occurs prior to the submittal of the LAR, where the PRA Configuration Control program applies. The cumulative impact of new information will be evaluated by the licensee prior to submittal of the LAR.
 - o The second phase is the LAR review. During the review, the NRC staff may identify new information, and should a safety issue arise at any time prior to the

Comment [A3]: Change is consistent with early version of industry's whitepaper. Interim update cited in 6/14/15 version of industry's whitepaper. The original quote from the 6/14/15 version is:

For an interim model update, maintenance and update procedures use criteria of a greater than 10% change in the CDF or anywhere from a 1% to 20% change in the LERF.

Comment [A4]: Change is consistent with industry comments on NRC expectations whitepaper. NRC document had should and there was no change by industry.

Comment [A5]: Change captures fact that may have interim or periodic updates, as referred to above, in reference to update cited on 6/14/15..

Comment [A6]: Change made is consistent with above modification to use the word "should." Aren't we talking about the same evaluation as above where should is used ?

Comment [A7]: Change consistent with discussions held between NRC and NEI. Nothing new here. NRC just wants to recognize that self approval may be used by the licensee once transitioned and the standard applies here. Recognizing the standard here is important since self approval would need an evaluation of new information.

issuance of the SE, the NRC will raise this issue and ask that its impact be evaluated on the PRA results and acceptance guidelines.

- The third phase occurs after the SE is issued and before completing full transition. The NFPA 805 license condition calls for a licensee, prior to transition to self-approval, to update their PRA model to reflect the as-built, as-operated plant following NFPA 805 modifications. Licensees should evaluate the impact of the new information, e.g. method and data updates, prior to completing the required requantification of the change-in-risk that is part of the verification that the change-in-risk associated with transition meets the RG 1.174 acceptance guidelines.
- The final phase occurs after full transition to NFPA 805 has been completed. The cumulative impact of new information shall be evaluated per the Configuration Control program when exercising self-approval for a plant change. The licensee's periodic update process which also applies during this stage typically takes place every 3-5 years. Maintenance and update procedures use criteria of a greater than 10% change in the CDF or anywhere from a 1% to 20% change in the LERF to identify significant changes for the periodic or interim update. Should the criteria be met, then the PRA will be updated with the new information. Should the criteria not be met, then the PRA will not be updated, and the new information will be set aside until the next periodic update or application of the PRA, at which point it will be considered.
- The licensees may perform an interim update depending on the extent of new information, in between periodic updates. Such an update would apply in the final phase.

Comment [A8]: All material above in this section is taken directly from NRC expectations document and includes comments by NEI. This change replicates agreed upon language for stages.

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