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, 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 reviewed using the licensee's process as evaluated in the peer review.
  - 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.
  - 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.
  - 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.

    - 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 a periodic 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 (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
    - 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 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 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.
    - Licensees who have not yet received self-approval can evaluate new methods or data as part of the update process called for in the license condition.
    - Licensees who have already fully transitioned to NFPA 805 can conduct this evaluation as part of their next periodic update.
    - 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 can be considered at the appropriate time as described above.