Discussion Points on Follow-On Peer Review Expectations

- Objectives
  - Discuss expectations for follow-on peer reviews, as described in the ANS/ASME PRA Standard endorsed in RG 1.200
  - Discuss examples of maintenance and upgrade, differentiating between updates and upgrades
    - From Standard
    - Additional from industry
  - Achieve a common understanding of when follow-on peer reviews will be expected
- Key Portions of ASME/ANS Standard
  - 1-5.4 PRA Maintenance and Upgrades
    - Upgrades of a PRA shall receive a peer review in accordance with the requirements specified in the Peer Review Section of each respective Part of this Standard, but limited to aspects of the PRA that have been upgraded.
  - Section 1-2.2 Definitions
    - *PRA maintenance:* the update of the PRA models to reflect plant changes such as modifications, procedure changes, or plant performance (data).
    - *PRA upgrade:* the incorporation into a PRA model of a new methodology or significant changes in scope or capability that impact the significant accident sequences or the significant accident progression sequences. This could include items such as new human error analysis methodology, new data update methods, new approaches to quantification or truncation, or new treatment of common cause failure.
  - 1-A.2 Nonmandatory Guidance for ASME PRA Standard Regarding Determination of Need for Additional PRA Peer Review
    - The general requirement is to require such review for PRA upgrades but not for PRA maintenance.
    - The rationale for this criterion is that *PRA upgrades* represent more extensive changes to the PRA (relative to *PRA maintenance*) and are likely to involve methodologies or scope that were not covered in previous peer reviews. PRA maintenance generally involves changes within the framework of an existing model structure and PRA configuration control program, and involves methodologies that have been applied in the PRA, and been previously peer reviewed.
- Examples from ASME/ANS Standard
  - 1-A.3.1 Example 1
    - 1-A.3.1.1 Change. A few initiating events are added to the model as a result of initial peer review comments.
    - No new methodology is required to implement them.
    - 1-A.3.1.2 Classification. PRA maintenance.

        - 1-A.3.1.3 Rationale. If the change does not have significant impact on risk insights, it would fall into the category of completeness, discussed in 1-A.2(c). The increased capability gained by this change would not be considered significant, since the new initiators represent only a modest increase in the total number of initiators, and the impact on the risk insights is not significant. The determination for this example is further reinforced by the fact that the change was recommended by the initial peer review so that the initiator completeness issue was apparently covered in that review.
    - 1-A.3.2 Example 2
        - 1-A.3.2.1 Change. A change of initiating event frequencies caused by incorporating plant data by using Bayesian update method that had been previously used.
        - 1-A.3.2.2 Classification. PRA maintenance.
        - 1-A.3.2.3 Rationale. This change reflects new information on plant performance (new data) and thus conforms to the definition of PRA maintenance.
    - 1-A.3.3 Example 3
        - 1-A.3.3.1 Change. A change of initiating event frequencies caused by the use of a more relevant generic database. No new methodology is employed.
        - 1-A.3.3.2 Classification. PRA maintenance.
        - 1-A.3.3.3 Rationale. The analysis requirement to perform the change is very similar to Example 2; the principal difference is the need to select the data set.
    - 1-A.3.4 Example 4
        - 1-A.3.4.1 Change. A change of initiating event frequencies caused by using a Bayesian update method for the first time.
        - 1-A.3.4.2 Classification. PRA upgrade.
        - 1-A.3.4.3 Rationale. This change involves introduction of a new methodology, so it meets criterion (a) in the guidance of 1-A.2(c).
- Industry examples
    - FPRA used panel factors, which were later removed.
        - Maintenance - removing an enhancement is not a new methodology, provided that no new methods are added in the place of the panel factors.
    - FPRA model credited an RCP shutdown seal, and OE demonstrates that credit should be removed.
        - Maintenance, assuming the model is reverted to the original seal model from the peer-reviewed internal events PRA.
    - FPRA previously used a pre-NUREG 1921 HRA approach that is not consistent with NUREG 1921 guidance, and a change is made to use a NUREG 1921 approach.
        - Upgrade. This is a new methodology for that FPRA.
    - Performance of additional detailed fire modeling in additional areas of the plant.
        - Maintenance if the same methods as used for other areas.

    - Upgrade if a new modeling code is used.
- Addressing discovery of error which had resulted in initiating events were not propagating correctly.
    - Maintenance, provided that the error is corrected with an approach used elsewhere in the PRA.
- FPRA adds credit for VEWFDS to areas of the plant.
    - Maintenance if VEWFDS was modeled using a model previously included, and is being added to new areas.
    - Upgrade if this is the first time crediting VEWFDS.
- Application of NFPA 805 FAQ-0064 to credit admin controls in transient frequencies.
    - Maintenance. The FAQ makes it very clear how and when the value can be used.
- FPRA adds or removes one of the mods to protect circuits from fire damage.
    - Maintenance.
- Most changes to the design of a system or a procedure.
    - Maintenance.
    - Potential exceptions: A new procedure may call for a new HRA approach, which would constitute an upgrade.
- FPRA used HRR of 317kw directly from 6850 for all transient scenarios. Desires to use 69kw in certain areas, with justification.
    - Upgrade.
    - If the previous review had already accepted the use of 69kw in some areas, and they will use the exact same justification, maintenance.