

19.4S PRA Maintenance

19.4S.1 Description of PRA Maintenance and Upgrade Program

19.4S.1.1 COL Application Review Phase

STP 3 & 4 commits to the NRC to develop procedures that control the development and maintenance of the as-designed, as-to-be-built, plant-specific PRA that will be used during the construction phase of STP 3 & 4. These procedures will be completed prior to construction start and the COLA updated at the next scheduled update to indicate the availability of these procedures for review (COM 19.4S-1). These procedures will implement the guidance contained in prevailing industry standards and guidelines, as endorsed by the NRC in Regulatory Guide (RG) 1.200 (Reference 19.4S-1), to the extent possible given the status of the plant design*. These procedures will be used to develop a plant-specific PRA that satisfies, to the extent possible, the requirements identified in the American Society of Mechanical Engineers (ASME) standard for PRA (Reference 19.4S-2) for an at-power, core damage frequency Level 1 and large early release Level 2 PRA model. The PRA quality requirements during this phase will be consistent with good industry practices and will satisfy the requirements identified in RG 1.174 (Reference 19.4S-3).

19.4S.1.2 Construction Phase

STP 3 & 4 commits to the NRC to develop and implement procedures, prior to construction start, to control the plant walkdown process to identify spatial interactions for the purpose of developing the plant fire PRA, the internal flooding PRA, and the seismic PRA (COM 19.4S-2). Plant walkdowns will be performed for the purposes of updating the PRA to reflect the as-being-constructed plant at selected construction milestones. These milestones will reflect completion of a significant construction activity (e.g., major equipment set, % cable pulled, etc.). STP 3 & 4 commits to the NRC to develop and implement procedures, prior to construction start, similar to those used to control STP 1 & 2 PRA maintenance and update to control the incorporation of changes to the as-designed, as-to-be-built, plant PRA (COM 19.4S-3). Periodically, these changes will be incorporated into the PRA. The COLA will be updated at the next scheduled update to indicate the availability of these procedures for review.

STP 3 & 4 commits to perform an industry peer review of the as-constructed plant-specific PRA at least six months prior to fuel load to ensure that the PRA contains the appropriate scope, level of detail, and technical adequacy, consistent with the prevailing PRA standards, guidance, and good industry practices (COM 19.4S-4). Where industry guidance is not available for the peer review of the as-constructed plant-specific PRA, review criteria and necessary attributes will be developed using best industry practices available at the time of the review. Findings and observations from this peer review will be reviewed and a plan of action to address the findings will be documented in the plants corrective action program.

* The prevailing industry standards have been developed to support operating nuclear power plants and therefore contain some requirements that cannot be satisfied by a plant with no operating experience or by a plant that has not been constructed.

Findings and observations that reveal fundamental weaknesses in PRA modeling will be incorporated into the as-constructed plant-specific PRA prior to using the PRA to support operations phase risk-informed activities. Other findings and observations that do not significantly affect operations phase risk-informed applications may be deferred until the first major update of the operations phase PRA.

19.4S.1.3 Operations Phase

An existing plant procedure on PRA Model Maintenance and Update discusses the process for maintaining and updating the plant-specific PRA that supports STP 1 & 2. This procedure will be used to maintain the plant-specific PRA developed to support operation of STP 3 & 4. The major provisions of this procedure are:

- The periodic update frequency for PRA model revisions is once every three years.
- Updates of selected PRA processes, such as human reliability analysis and external events analysis are performed as necessary in response to changes in industry and NRC guidance and experience. These processes are reviewed as part of the model update process to identify potential changes.
- Tracking of proposed changes to the PRA model using the stations Corrective Action Program.
- Deferred tasks not performed during a periodic update are documented in a Condition Report in the Corrective Action Program. This Condition Report justifies the deferral and develops a plan of action for expeditiously completing remaining model tasks.
- A description of the station records and industry programs that are periodically reviewed to identify potential changes to the plant-specific PRA model.
- If a potential change to the PRA results in an increase to core damage frequency and/or large early release frequency of less than 10%, then the change is entered into the set of model changes for the next regularly scheduled PRA update. If the proposed change results in a change in core damage frequency or large early release frequency of greater than or equal to 10%, the Manager of Risk Management is notified and a tracking condition report is generated for the affected system or process clearly outlining the necessary changes. The decision to update the affected section(s) of the PRA is made by the Manager of Risk Management based upon consideration of the effect of the changes on existing risk-informed processes.
- Describes which risk-informed applications are required to be updated after a PRA model revision.
- Identifies which section of the plant-specific PRA will be updated during the periodic PRA update.

- This procedure is reviewed periodically to ensure that it remains consistent with the NRC endorsed standards appropriate for the uses and applications of the plant-specific PRA.

19.4S.1.4 References

- 19.4S-1 “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”, NRC Regulatory Guide 1.200, Revision 1.
- 19.4S-2 “Standard for Probabilistic Risk Assessment for Nuclear Power Plant Applications”, American Society of Mechanical Engineers, ASME RA-Sb-2005 Addenda to ASME RA-S-2002.
- 19.4S-3 “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes”, NRC Regulatory Guide 1.174, Revision 1.

