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Subject: Review of SAMDA Relative to Impact for AP1000 DCD Revision 18

The Severe Accident Mitigation Design Alternative (SAMDA) for the AP1000 presented in Appendix 1B of the AP1000 DCD Revision 17 has been reviewed for applicability to the current AP1000 PRA. It was found that no change to the SAMDA is necessary for AP1000 DCD Revision 18.

The AP1000 PRA model has been updated since the last update of the SAMDA. The update to the PRA is documented in TR102 Revision 1. TR 102 Revision 1 is necessary to assist COL applicants to be able to close the COL information item with respect to updating the PRA to be consistent with the as-to-be-built plant design.

The Core Damage Frequency (CDF) and Large Release Frequency (LRF) calculated from the updated internal events at-power PRA model are consistent with those presented in the previous revision to the AP1000 PRA supporting the design certified AP1000. As such, the evaluations, conclusions and insights from the internal events at power PRA documented in Chapter 19 of AP1000 DCD Revision 17, and the AP1000 PRA, APP-GW-GL-022 Revision 8, remain representative of the AP1000 design and will not be revised. The sensitivity of standby non-safety systems is provided as additional justification that the PRA model revisions and software change further reinforce that the results and conclusions documented in Chapter 19 of AP1000 DCD Revision 17, are valid and applicable to the AP1000 standard design.

As discussed in OI-SRP19.0-SPLA-13 Revision 1, the AP1000 PRA Low-Power and Shutdown PRA models have been re-quantified as documented in TR102 Revision 1 along with changes to the AP1000 DCD. The re-quantification of the low-power and shutdown PRA models resulted in changes in the CDF and LRF values and top cut sets that are reflected in Chapter 19 of the AP1000 DCD Revision 18. These changes in the low-power and shutdown PRA models result in an overall reduction in CDF and LRF for AP1000 DCD Revision 18. The resulting changes in component risk significance, PRA insights, or quantification results including top cut sets have no impact on the current SAMDA, Appendix 1B of Reference 1.

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As discussed in OI-SRP19.0-SPLA-12 Revision 4, the AP1000 Seismic Margin Analysis (SMA) has been updated for the AP1000 PRA. Changes to the AP1000 DCD Revision 18 were made to incorporate the results of the AP1000 PRA SMA. This revised analysis did not result in changes to the conclusions of the AP1000 SMA and thus have no impact on the current SAMDA, Appendix 1B of Reference 1.

The current SAMDA, Appendix 1B of Reference 1, states that, as the AP1000 plant CDF is lower than for existing plants, the benefits of additional design alternatives are small. As a result of information presented, the AP1000 SAMDA, Appendix 1B of Reference 1, will not be revised at this time as it accurately represents the current AP1000 PRA.

Very truly yours,



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