Talking Points for Public Meeting Discussion
Request for Additional Information (RAI) 70-8027, Question 3.12-3
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This RAI requested information on how the pressurizer surge line (PZR SL) will be monitored to verify design transients and thermal stratification used in the structural design of the PZR SL. NRC Bulletin (BL) 88-11 and SRP Section 3.12 discuss the potential for stresses induced by thermal stratification in the PZR SL. In particular, BL 88-11 requested the establishment of a program that would monitor the surge line for the effects of thermal stratification beginning with hot functional testing (HFT). The staff has comments regarding the applicant's response (ML15260B229).

1. The applicant's response in part shows that the DCD will be revised to show that the monitoring will be the COL applicant's responsibility. The applicant stated: "A COL applicant will implement the monitoring program during the first preoperational test to verify the design transients used in the structural design of the surge line." To appropriately verify the design transients, monitoring should be continued for at least the first cycle of operation, not just the first preoperational test. The applicant is requested to address transient monitoring in the public meeting discussion.

2. The applicant's response also states that: "The monitoring program includes the real-time measurements of the surge line pipe displacements at several major locations on the surge line and plant data such as hot leg and pressurizer temperatures, pressurizer pressure and level, charging and letdown lows, as well as the status of reactor coolant pumps, pressurizer heaters, and spray valves. The test to monitor the surge line stratification will be performed in accordance with the test guideline for the test described in DCD Tier 2, Section 14.2.12.1.51, 'Pre-Core Reactor Coolant System Expansion Measurements.'"

   The staff observes that DCD Tier 2, Chapter 14 does not appear to include discussion of activities related to PZR SL monitoring. DCD Tier 2, Section 14.2.12.1.51 addresses thermal expansion during initial heatup and return to their baseline cold position after the initial cooldown to ambient temperature. This test does not demonstrate that the PZR SL stratification temperatures are within analyzed acceptable limits and do not cause unanalyzed thermal cycles.

   The applicant is requested to discuss during the public meeting how the test abstracts in DCD Tier 2, Chapter 14 address the issues identified in BL 88-1 for PZR SL thermal stratification monitoring.

   It is noted that all new pressurized-water reactor design certifications that the NRC has approved include this type of thermal stratification monitoring, which addresses the technical issues raised in BL 88-11.

3. The applicant in part of its response compared the APR1400 with the Yonggwang Nuclear Power Plant Unit 3 (YGN 3) OPR1000 and the Shin-Kori Nuclear Power Plant Unit 3 (SKN 3) APR1400 to conclude that the APR1400 is not a first-of-a-kind (FOAK) plant.

   Question 3.12-3 was not focused on FOAK tests. In addition, there are other staff questions (e.g., RAI 91-7867, Question 14.02-7) relating to the designation of APR1400 plants as FOAK for United States construction. As such, the applicant may wish to consider revising its response to RAI-70-8027, Question 3.12-3 to remove the unnecessary discussion regarding FOAK test, or to discuss further in the public meeting.

4. The applicant in its response provided a markup for DCD Tier 2, Section 3.12.7, Combined License Information. The list, including the inserted COL item for surge line monitoring, amounts to 8 COL items. The staff requests that the applicant review this list, as the applicant in previous docketed correspondence has deleted the majority of these COL items (in response to discussions with the staff).