REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. 52-046

RAI No.:	**410-8357**
SRP Section:	**SRP 19**
Application Section:	**19.1**
Date of RAI Issue:	**02/22/2016**

Question No. 19-29

Item 11 of Section II, “Acceptance Criteria,” of the (Draft) Revision 3 SRP, states, “The PRAs that meet the applicable supporting requirements for Capability Category I and meet the high-level requirements as defined in the ASME PRA Standard (ASME/ANS RA-S-2008 and addenda ASME/ANS RA-Sa–2009) should generally be acceptable for DC and COL applications. Alternatively, the applicant may identify, and justify the acceptability of, alternative measures for addressing PRA quality and technical adequacy. The staff should specifically review the acceptability of these alternative measures in the context of the specific uses and applications of the PRA.”

The staff reviewed the APR1400 design control document (DCD) Section 19.1.4.1.1, “Description of Level 1 Internal Events PRA for Operations at Power,” and found insufficient information describing the initiating event analysis performed. Specifically, the applicant did not identify and/or evaluate a very small loss of coolant accident (LOCA) initiating event for which generic data is available, common cause failure of 4.16kV AC buses and loss of direct current (LODC) power for the ‘C’ and ‘D’ trains. Therefore, in order for the staff to reach an assurance finding on the conformance to Standard Review Plan (SRP) Chapter 19.0 regarding PRA technical adequacy, please evaluate the very small LOCA initiating event or provide a justification for not evaluating it and revise the DCD accordingly.

Response – (Rev. 1)

Concerning very small LOCA, in the response to Action Item 19-206 (PRA-184), 19-214 (PRA-192) and 19-216 (PRA-194), CSLOCA is currently included in SLOCA. These three (3) action items included markups to all of the applicable documents as well as an assessment of the impact of adding VSLOCA. Note that since the VSLOCA break size is smaller than the SLOCA break size, operator action times would be greater; hence, treatment of VSLOCA within SLOCA is conservative with respect to operator action times. Also, since continued normal charging could, by definition, successfully mitigate a VSLOCA, and since the SLOCA event tree ((ET)

does not credit normal charging, incorporation of the VSLOCA within the SLOCA ET is conservative with respect to accident sequence analysis.

The loss of 1E 125V DC channel C and D does not directly result in a reactor trip, thus it is not applicable as an initiator of APR1400 PRA.

Typically, a partial loss of a 1E 4.16kV AC power bus is evaluated as a special initiating event. However, for the 4.16kV AC power system of APR1400, the loss of a single 4.16kV bus would not result in a reactor trip. Two 1E 4.16kV buses should be lost at the same time, and common cause failure of two buses is not consider as an initiator.

Impact on DCD

There is no impact on the DCD.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environment Report.