

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.: 371-8456
Review Section: 07.07 – Control Systems
Application Section: 07.07
Date of RAI Issue: 01/19/2016

Question No. 07.07-13

10 CFR 50 Appendix A, General Design Criterion 10, "Reactor Design", requires that the reactor be designed with sufficient margin to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences. NUREG-0800 SRP Section 7.7 states, in part, that the effects of failures of control systems should not cause plant conditions more severe than those described in the analysis of design basis accidents and anticipated operational occurrences in Chapter 15 of the safety analysis report.

Section 5.2.4.10, "Reactor Coolant Pump Control," of APR1400-Z-J-NR-14012-P, Revision 0, states multiple failures of the reactor coolant pump control group can cause a complete loss of reactor coolant flow; and Section 5.2.4.15, "Non-1E AC Power to the Station Auxiliaries," states that multiple failures of non-Class 1E 13.8 kV power control group can also result in complete loss of reactor coolant flow. The postulated control system failure events described in both Sections 5.2.4.10 and 5.2.4.15 are reported to be bounded by the DCD Section 15.3.1 Loss of Forced Reactor Coolant Flow analysis.

Address whether any combination of control system failures can result in a decrease in reactor coolant system flow more rapidly than the pump coastdown used in the DCD Section 15.3.1, Loss of Forced Reactor Flow event. For example, can a forced reactor coolant pump speed reduction due to bus electrical under-frequency decrease RCS flow faster than the RCP coastdown flow assumed?

Response

TS

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Figure 1 Core Flow vs. Time

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 Environmental Report.