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## 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.: 128-7980  
SRP Section: 18 – Human Factors Engineering  
Application Section: 18.6 Treatment of Important Human Actions (TIHAs)  
Date of RAI Issue: 08/05/2015

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### **Question No. 18-21**

“Section 7.4 (2), “Review Criteria,” of NUREG-0711, states that applicants should identify deterministically-important HAs from the following licensing analyses: operator actions credited in the DCD Chapter 15 accident and transient analyses.

The staff reviewed DCD Chapter 15 and Subsection 15.6.5.5.1.1, “Containment Leakage” states that, “... containment spray ... is assumed to be initiated 110 seconds after the start of the LOCA [loss of coolant accident] event. The CSS [containment spray system] is automatically initiated by a safety injection actuation signal (SIAS) or a containment spray actuation signal (CSAS)...” Containment spray reduces the concentration and quality of fission products released to the environment following postulated accidents, as required by General Design Criterion 41 of Appendix A, “General Design Criteria for Nuclear Power Plants,” of 10 CFR 50.

This information conflicts with the information in Section 4.2, “DIHAs,” of the TIHA IP. Section 4.2, states that manual containment spray actuation signal (CSAS) is not a DIHA because it is not needed for more than [ ] after the event initiation (i.e., long after the plant has been stabilized).

Align the statement(s) in the TIHA IP concerning CSAS actuation with the information in Chapter 15.

Revise the submittal to reflect the RAI response.”

### **Response**

Section 4.2, “Deterministically-Important Human Actions Analyses” of APR1400-E-I-NR-14006, “Treatment of Important Human Actions Implementation Plan” (TIHA IP) states that the manual actuation of the containment spray actuation signal (CSAS) is not a deterministically identified important human action (DIHA). However, the statement conflicts with the DIHA list. The DIHA list provided in response to RAI 128-7980 Question 18-17 includes manual actuation of the

CSAS for the loss of coolant accident (LOCA) scenario. Based on the diversity and defense-in-depth coping analysis, the manual actuation of the CSAS is required during the common cause failure condition concurrent with LOCA and the manual action for CSAS actuation is identified as a DIHA. Therefore Section 4.2 of the TIHA IP will be revised to eliminate the example containing the statement that manual actuation of the CSAS is not a DIHA, as indicated in the attachment associated with this response.

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**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**

Technical report APR1400-E-I-NR-14006-P/NP, Rev.0, "Treatment of Important Human Actions Implementation Plan," Subsection 4.2 will be revised as indicated in the attachment associated with this response.

