

## 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.: 317-8271

SRP Section: 14.03.05 - Instrumentation and Controls - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section:

Date of RAI Issue: 11/17/2015

### **Question No. 14.03.05-32**

Provide design descriptions, including corresponding ITAACs regarding the system development of the IFPD.

10 CFR Part 50, Appendix A, GDC 1, requires SSCs important to safety to be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety functions to be performed. GDC 13 states, "Instrumentation shall be provided to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety, including those variables and systems that can affect the fission process, the integrity of the reactor core, the reactor coolant pressure boundary, and the containment and its associated systems. Appropriate controls shall be provided to maintain these variables and systems within prescribed operating ranges." Technical Report APR1400-Z-J-NR-14001, Rev. 0, "Safety I&C System Technical Report," Section 4.4.2 states "The ESCM provides the operators with [ withheld as proprietary .] The ESCMs on the operator consoles work [ withheld as proprietary .]" It appears that the IFPD is used as the primary control and indication (including alarms), during normal, abnormal, and accident conditions. As such, the staff considers the IFPD important-to-safety. Thus, the staff requests the applicant to provide design descriptions, including corresponding ITAACs regarding the system development of the IFPD in APR1400 FSAR Tier 1, Section 2.5, in order to demonstrate that the requirements GDC 1 and GDC 13 are met for the as-built IFPD. In addition, the staff requests the applicant to modify the APR1400 FSAR to provide a description of what augmented quality is associated with the IFPD, including its classification in Technical Report, APR1400-Z-J-NR-14003, Rev. 0, "Software Program Manual."

### **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-Z-J-NR-14001-NP, Rev. 0, "Safety I&C System", Subsection 4.4.2 will be revised as indicated in the attachment.

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**4.4.3 Architecture Description**

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