

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.: 51-7966
SRP Section: 18 - Human Factors Engineering
Application Section: 18.12
Date of RAI Issued: 06/23/2015

Question No. 18-1

10 CFR 52.79(d)(3) states that:

The final safety analysis report must demonstrate that all requirements and restrictions set forth in the referenced design certification rule, other than those imposed under § 50.36b, must be satisfied by the date of issuance of the combined license. Any requirements and restrictions set forth in the referenced design certification rule that could not be satisfied by the time of issuance of the combined license, must be set forth as terms or conditions of the combined license.

Human performance monitoring (HPM) is the responsibility of the COL. As such, a COL action item should be provided in the FSAR to ensure that a human performance monitoring strategy is implemented.

Please provide a COL Action Item for the HPM element in Chapter 18 of the FSAR.

Response

As described in Section 18.12, the human performance monitoring program is the responsibility of the COL applicant. A COL action item will be added to DCD Section 18.12 and Table 1.8-2, as indicated in Attachments 1 and 2 of this response.

Impact on DCD

DCD Tier 2, Section 18.12 will be revised as indicated in Attachment 1.

DCD Tier 2, Table 1.8-2 will be revised as indicated in Attachment 2.

Impact on PRA

There is no impact on the PRA.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical and Environmental Reports.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

APR1400 DCD TIER 218.12 Human Performance Monitoring

The human performance monitoring (~~HPM~~) program is the responsibility of the COL applicant and not part of the KHNP human factors engineering (HFE) program. Analytical products and results from the HFE program are available to the COL applicant in support of their program ←

The COL applicant is to provide the human performance monitoring program (COL 18.12 (1)).

18.12.1 Combined License Information

COL 18.12(1) The COL applicant is to provide the human performance monitoring program.

APR1400 DCD TIER 2

HA	human action
HD	human-system interface design
HDTM	HFE design team meeting
HED	human engineering discrepancy
HF	human factors
HFE	human factors engineering
HFEPP	human factors engineering program plan
HPM	human performance monitoring ← delete
HRA	human reliability analysis
HSI	human-system interface
I&C	instrumentation and control
ICR	information and control requirement
IEEE	Institute of Electrical and Electronics Engineers
IHA	important human action
INPO	Institute of Nuclear Plant Operations
IP	implementation plan
IPS	information processing system
ISV	integrated system validation
ITS	issue tracking system
KHNP	Korea Hydro & Nuclear Power Co., Ltd.
LCS	local control station
LDP	large display panel
MCR	main control room
NASA	National Aeronautics and Space Administration
NLO	non-licensed operator
NRC	United States Nuclear Regulatory Commission
NSAC	Nuclear Safety Analysis Center
NSSS	nuclear steam supply system
OECD	Organization for Economic Co-operation and Development
OER	operating experience review

APR1400 DCD TIER 2

Table 1.8-2 (26 of 29)

Item No.	Description
COL 17.4(2)	<p>The COL applicant is to develop and implement the RAP in the operational phase in which RAP activities are integrated into the existing operational program (e.g., Maintenance Rule, surveillance testing, in-service inspection, in-service testing, QA). The RAP in the operational phase also includes the process for providing corrective actions for design and operational errors that degrade non-safety-related SSCs within the scope of the RAP. A description of the proposed method for developing /integrating the operational RAP into operating plant programs (e.g., Maintenance Rule, quality assurance) is to be performed during the COL application phase. The development/integration of the O-RAP is performed during the COL license holder phase and prior to initial fuel loading. All SSCs identified as risk-significant within the scope of the design RAP are categorized as high-safety-significant (HSS) within the scope of the initial Maintenance Rule. Integration of reliability assurance activities into existing operational programs also addresses the establishment of:</p> <p>a. Reliability performance goals for risk-significant SSCs consistent with the existing maintenance and quality assurance processes on the basis of information from the design RAP (for example, implementation of the Maintenance Rule following the guidance contained in NRC RG 1.160 is one acceptable method for establishing performance goals if SSCs are categorized as HSS within the scope of the Maintenance Rule program).</p>
COL 18.12(1)	<p>The COL applicant is to provide the human performance monitoring program.</p> <p>operations.</p>
COL 17.5(1)	The COL applicant is to establish and implement a QA program that is applicable to site-specific design activities related to the plant construction and operation phases.
COL 17.6(1)	The COL applicant is to provide in its Final Safety Analysis Report a description of the Maintenance Rule program and a plan for implementing it to meet the requirements of 10 CFR 50.65.
COL 19.0(1)	The COL applicant is either to confirm that the PRA in the design certification bounds the site-specific design information and any design changes or departures, or to update the PRA to reflect the site-specific design information and any design changes or departures.