
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.: 373-8480

SRP Section: 18 – Human Factors Engineering

Application Section:

Date of RAI Issue: 01/22/2016

Question No. 18-92

NUREG-0711, Section 1.2.2, "Review Elements," states that an acceptable implementation plan (IP) describes the methodology in a step-by-step format to ensure that design personnel can reliably use the IP consistent results will be obtained from executing the methodology.

The HD IP, Section 3.2.7, "Performance-Based Tests," refers to a time margin for important human actions, and a value is given for this margin. This same margin is discussed in the TA IP, Section 4.3.2, "Time Margin." The staff requested additional information about the basis for this margin in RAI 315-8091, Question # 18-53 (Issued 11/16/2015, ML15320A406). The response has not yet been provided.

Align the information in the HD IP with the response that will be submitted for RAI 315-8091, Question # 18-53, if the response will result in inconsistent information between the HD IP and the task analysis implementation plan.

Response

Section 3.2.7 of the Human-System Interface Design Implementation Plan, APR1400-E-I-NR-14007 will be revised to be consistent with the information provided in the applicant's response to RAI 315-8091, Question 18-53.

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-14007-NP, Rev.0, "HSI Design Implementation Plan," Section 3.2.7 will be revised, as indicated in the attachment associated with this response.

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3.2.5 Alarms

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3.2.6 Computer-Based Procedures

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3.2.7 Performance-Based Tests

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Question No. 18-94

NUREG-0711, Criterion 8.4.4.3(5) states in part that “the applicant should describe how the HSIs allow all Technical Support Center (TSC) personnel to complete their assigned tasks with unhindered access to alphanumeric and/or graphical representations...”

The HD IP, Section 4.2.8, “Central Facilities,” lists the method used to design the TSC. Item 10 in this section lists acceptance criteria; however, the specific criteria in NUREG-0700 are not identified. It is not clear to the staff which acceptance criteria in NUREG-0700 apply, and if the same acceptance criteria apply to the main control room as the TSC.

Clarify which criteria in NUREG-0700 will be used as acceptance criteria for Item 10(b) in the HD IP, Section 4.2.8, for the TSC, remote shutdown room and main control room.

Response

The acceptance criteria for Item 10(b) in Section 4.2.8 of the Human-System Interface Design Implementation Plan (HD IP) will be revised to specify the criteria for visibility and traffic as indicated in the attachment associated with the response. The following criteria will be added.

Four (4) criteria (6.3.2-8, 11.1.1-6, 11.1.2-5 and 12.1.1.3-1) are applicable to MCR only.

1. Traffic (Movement and Accessibility)
 - 12.1.1.3-3 Access to Workstations
 - 12.1.1.3-4 Circulation Patterns
 - 12.1.1.3-5 Maneuvering Space

- 12.1.1.7-1 Equipment Arrangement
2. Visibility
- 5.1-2 Critical Safety Function Display Visibility
 - 6.3.2-6 Unobstructed View
 - 6.3.2-7 Externally Illuminated Displays
 - 6.3.2-8 Projected Displays (MCR only)
 - 6.3.2-9 Text Size
 - 6.3.2-10 Use of Labels
 - 11.1.1-6 Display Height and Orientation (MCR only)
 - 11.1.2-5 Display Height and Orientation (MCR only)
 - 12.1.1.3-1 Viewing (MCR only)
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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-14007-NP, Rev.0, "Human-System Interface Design Implementation Plan," Section 4.2.8 will be revised, as indicated in the attachment associated with this response.

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4.2.9 Local Control Stations and Facilities

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