

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.: 383-8458

SRP Section: 18 – Human Factors Engineering

Application Section:

Date of RAI Issue: 02/01/2016

Question No. 18-104

NUREG-0711, Rev. 3, "Human Factors Engineering Program Review Model," Criterion 8.4.4.2(15), "Computer-Based Procedure Platform," states that the applicant's computer-based procedures should be consistent with the design review guidance in NUREG-0700, Section 8, "Computer-Based Procedure System." NUREG-0700, Section 8, Criterion 8.1.2-5 states that words from standard American English should be used, and Criterion 8.1.2-6 states that punctuation should conform to standard American English.

APR1400-E-I-NR-14012-P, "Style Guide," Items 5.2.1.2(e) and (f), state that words from standard Korean should be used, and punctuation should conform to standard Korean usage.

Revise the Style Guide so that standard American English words and punctuation are used in the computer-based procedure system.

Response

Section 5.2.1.2, "Basic Steps of Procedures," of the Style Guide will be revised to address the standard American English words and punctuation, as indicated in the attachment associated with this response.

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-14012-P/NP, Rev.0, "Style Guide," Subsection 5.2.1.2 will be revised, as indicated in the attachment associated with this response.

required to select a component or variable, the HSI should be designed to prevent misordered action-sequence errors.

- d) Minimize the Number of Retrieval Steps for Controls that are Used Together - When a group of controls must be used together, their retrieval should require a minimal number of actions.

5.1.3.7 Control Inputs

- a) Automatic Reset of Multi-Variable Controls - If an input device controls more than one variable, the operator should not have to reset the device to match the value of the new variable before executing a control action.
- b) Numerical Input Values - The HSI should provide feedback to support the operator in verifying the correctness of numerical values entered.

5.1.3.8 Handling stored Data

- a) Minimize the Use of Irreversible Actions - The design of the HSI should minimize the use of irreversible actions for handling stored data.
- b) Deferring Execution of Operations that are Destructive to Stored Information - Whenever practical, irreversible operations that destroy stored information should be deferred and require a separate action for their execution rather than being carried out immediately.

5.1.3.9 System Response

- a) Actuation Feedback - Soft controls should provide feedback about their operating state after activation.
- b) Operator Notification of Automatic Mode Changes - Systems that can change mode automatically should provide feedback to make the operator aware of the current mode.
- c) Delaying System Response - Where appropriate, systems that are sensitive to incorrect inputs should be designed to limit the rate at which these inputs can affect the process.

5.2 Computer-Based Procedures

5.2.1 Representation of Procedures

5.2.1.1 Identification of Procedures

- a) Procedure Title and Identification Information - Each procedure should contain identifying information including title, procedure number, revision number, date, and organizational approval.
- b) High-Level Goals - Each procedure should state its high-level goals and applicability, including its procedure category, e.g., emergency or abnormal.

5.2.1.2 Basic Steps of Procedures

- a) Concise Steps - Procedure steps should be concise.
- b) Short Sentences - Procedure steps should be written as short sentences.
- c) Active Voice - Procedure steps should be written in active voice.
- d) Positive Commands - Procedure steps should be written as positive commands.
- e) Simple Wording - Short, simple words from standard ~~Korean~~ should be used.
- f) Standard Punctuation - Punctuation should conform to standard ~~Korean~~ usage.
- g) Consistent Word References - Words, phrases, and equipment names and numbers should be used consistently within and among procedures, drawings, other HSIs, and equipment labels.
- h) Abbreviations and Acronyms - Abbreviations and acronyms should be used consistently and limited to those well known to the users.
- i) Units of Measures - Numerical information should include units of measure.
- j) Numerical Precision - Numbers should be specified at the appropriate precision.
- k) Number Ranges - Ranges of numbers should be specified, rather than error bands.
- l) Use Arabic Numerals - Arabic numerals should be used.
- m) Spelled Numbers - Numbers that are spelled out should be consistently spelled under the same conditions.
- n) Presentation of Conditional Steps - Conditional steps should be shown in traditional text formats

American English

American English