

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Wednesday, September 02, 2015 3:04 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Andy Jiyong Oh; Erin Wisler
Cc: Green, Brian; Junge, Michael; Wunder, George; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 196-8164 (18 - Human Factors Engineering)
Attachments: APR1400 DC RAI 196 COLB 8164.pdf; image001.jpg

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs. However, KHNP requests, and we grant, 45 days to respond to this RAI. We may adjust the schedule accordingly.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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Hearing Identifier: KHNP_APR1400_DCD_RAI_Public
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Subject: APR1400 Design Certification Application RAI 196-8164 (18 - Human Factors Engineering)
Sent Date: 9/2/2015 3:03:55 PM
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Options

Priority: Standard
Return Notification: No
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REQUEST FOR ADDITIONAL INFORMATION 196-8164

Issue Date: 09/02/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 18 - Human Factors Engineering
Application Section: 18.1, HFE Program Plan

QUESTIONS

18-24

Title 10, Section 50.34(f)(2)(iii) requires that a reactor design applicant provide a control room design that reflects state-of-the-art human factor principles prior to committing to fabrication...control room panels and layouts. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Chapter 18, "Human Factors Engineering," provides guidance for NRC staff to perform a review of the human factors engineering design portion of a reactor design. NUREG-0711, provides additional details, including detailing the review criteria to assist the staff in performing its design review.

NUREG-0711, Rev. 3, Section 2.4.3, criterion 2, "Process Management Tools," indicates that applicants should identify tools and techniques for verifying that the HFE team fulfills their responsibilities. The document APR1400-E-I-NR-14001, "Human Factors Engineering Program Plan," (HFE PP), Section 4.4.2.3, "Process Management Tools," identifies the Information Tracking System (ITS) and Review and Comment system as two tools used to management the HFE process, however, several questions remain regarding how these systems will be used. Additional information is necessary regarding the processes used to ensure that the HFE team adequately fulfills their responsibilities.

1. Clarification of use of Review and Comment System

Appendix A of the HFE PP indicates that Section 4.4.2.3 should have the information necessary to fulfill this criterion. A review of this section has identified two tools used for process management: the review and comment system and the issue tracking system (ITS). Additional information is needed regarding how the Review and Comment System is used to fulfill this criterion.

Please provide additional information about *how* the review and comment system is to be used. Specifically include descriptions about:

- Any processes used to review comments and opinions entered in the review and comment system
- Any processes used to resolve comments and opinions entered in the review and comment system
- Any interactions between the review and comment system, the ITS, and the Corrective Action Program

18-25

2. Problems with Names of Documents

Title 10 of the Code of Federal Regulations, Part 52.6 requires that licensees provide complete and accurate information. During the June audit of the Engineering Procedures Manual (EPM), staff identified that the name of this document is inaccurate in the Chapter 18 DCD materials (it is referred to as the Project Procedure Manual (PPM)). This was specifically identified in the HFE Program Plan implementation plan; however, this error may occur in other docketed material as well. This document will be cited in the staff's safety evaluation, and it must have accurate references so that subsequent audits/inspections can be conducted.

REQUEST FOR ADDITIONAL INFORMATION 196-8164

Please update references accordingly so that future auditors/inspectors can find the accurate referenced information.

18-26

3. EP-2.04 Processes Identified in the Audit - Request for Docketed Material

A regulatory audit of the EPM/PPM (see previous question) conducted on June 25 and 26, 2015, identified information in the EPM/PPM that is relevant to NUREG-0711, Section 2.4.3, Criterion 2, "Process Management Tools." Material identified in the audit of EP-2.04 can be used to partially support a safety decision for this criterion.

EP-2.04, Engineering Procedures Manual "Personnel Qualification" describes, amongst other things, a process intended to document and verify that personnel have the appropriate qualifications for the positions to which they are assigned.

The process described in EP-2.04 instructs employees how to update resumes in a standard format that can be easily reviewed by management. Also included is the process by which management will review these resumes. This information is relevant to coming to a safety determination regarding this criterion because it describes a process that ensures that the right people are performing appropriate work.

Please provide a description on the docket of the EP-2.04 process used to verify that the HFE team is assigned to appropriate responsibilities. Alternatively, you may submit EP-2.04 on the docket with a brief explanation about how this process is applied to the HFE team. The applicant should note that submission of this information helps to address gaps identified in the implementation plan; however, this process alone may not be sufficient to fully address this criterion.

