

KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Friday, June 26, 2015 5:59 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry Chang; 'Yunho Kim' (yshh8226@gmail.com); Mannon, Steven (steven.mannon@aecom.com)
Cc: Ciocco, Jeff; Lee, Samuel; Junge, Michael; Walker, Jacqwan
Subject: APR1400 Design Certification Application RAI 53-7982 (18 Human Factors Engineering)
Attachments: APR1400 DC RAI 53 COLP 7982.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, the following days to respond to the RAI's questions. We may adjust the schedule accordingly.

18-2: 90 days

18-3: 60 days

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

Thank you,

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Subject: APR1400 Design Certification Application RAI 53-7982 (18 Human Factors Engineering)
Sent Date: 6/26/2015 5:58:33 PM
Received Date: 6/26/2015 5:58:35 PM
From: Ward, William

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APR1400 DC RAI 53 COLP 7982.pdf		83626
image001.jpg	4189	

Options

Priority: Standard
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REQUEST FOR ADDITIONAL INFORMATION 53-7982

Issue Date: 06/26/2015

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:

QUESTIONS

18-2

Title 10 of the Code of Federal Regulations (10CFR) Section 52.47(a)(8) requires an applicant for a design certification to provide an FSAR which includes the information necessary to demonstrate compliance with any technically relevant portions of the Three Mile Island requirements set forth in 10 CFR 50.34(f), with certain exceptions. Section 10 CFR 50.34(f)(2)(ii) requires an applicant to "Establish a program, to begin during construction and follow into operation, for integrating and expanding current efforts to improve plant procedures. The scope of the program shall include.....human factors engineering..." The current NRC guidance for developing a human factors engineering (HFE) program is NUREG-0711, Rev 3, "Human Factors Engineering Program Review Model." The applicant stated in the FSAR, Tier 2, Chapter 18 "Human Factors Engineering," that it was working in accordance with the criteria of NUREG-0711 in establishing its HFE program.

NUREG-0711, Section 3.4, "Review Criteria," Criterion 2 states that the applicant should address the HFE issues in NUREG/CR-6400.

The staff notes that each of the items provided in the bulleted list are restated in the "Operating Experience Review Implementation Plan" (OER IP), APR1400-E-I-NR-14002, Rev. 0, Section 4.6, "Grouping Operating Experience" and NUREG/CR-6400 is specifically called out as a source for US operating experience in Section 4.2, "U.S. Source Operating Experience Data Collection." However, in Section 4.2, other descriptions for the sources of OE are very general. Some examples:

- "NRC NUREGs" listed, but which NUREGs (other than 6400) will be part of the OER?
- "Vendor groups" is listed as well, but which vendor groups?
- The Institute for Nuclear Power Operations (INPO) is also listed. What type(s) of information will be gathered from INPO in the OER?

Please provide greater specificity and detail that describes which parts of the source items are used or searched during the OER process.

REQUEST FOR ADDITIONAL INFORMATION 53-7982

18-3

NUREG-0711, Section 3.4, "Review Criteria," Criterion 1, states that the applicant's operating experience review (OER) should include information about human factors issues in the predecessor plant(s) or highly similar plants, and that the OER should detail how the applicant identified and analyzed any HFE-related problems in the previous plants/designs, and how these issues are avoided in the new design.

Section 4.5, "The Process of Screening Operating Experience for Applicability," of APR1400-E-I-NR-14002, Rev.0 (OER IP), provides the APR1400 screening process for operating experience applicability. In the first paragraph the OER IP states that "OEs with dates before the SKN 3&4 close date are assumed to be included in the SKN 3&4 OER and are not be screened again." The staff acknowledges KHNP's approach to make use of the existing SKN 3&4 OER. However, staff had the following questions related to this statement:

Question 1:

The word "assumed" does not provide clarity on what was actually included in the SKN 3&4 OER. What OEs were included in the SKN 3&4 OER?

Question 2:

As stated in the OER IP abstract, the SKN 3&4 OER is the basis of the APR1400. However, given that SKN 3&4 is not an NRC approved design, the staff has the following questions:

- Was the OER NUREG-0711 process used for the SKN 3&4 OER?
- Will the results of the SKN 3&4 OER be included in the APR1400 ReSR or if SKN 3&4 used the NUREG-0711 process, is there a ReSR that NRC could review now during Phase 2 review that describes the SKN 3&4 OE review results?

