

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, July 26, 2016 9:50 AM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Jung-ho Kim (jhokim082@gmail.com); Andy Jiyong Oh; James Ross
Cc: Kent, Lauren; Junge, Michael; Ward, William; Williams, Donna
Subject: APR1400 Design Certification Application RAI 505-8648 (18 - Human Factors Engineering)
Attachments: APR1400 DC RAI 505 HOIB 8648.pdf

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.

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

Thank you,

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Subject: APR1400 Design Certification Application RAI 505-8648 (18 - Human Factors Engineering)
Sent Date: 7/26/2016 9:50:25 AM
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REQUEST FOR ADDITIONAL INFORMATION 505-8648

Issue Date: 07/26/2016

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

18-126

Regulation: Title 10 CFR 50.54(m) specifies staffing requirements to be met by a nuclear power plant licensee. NUREG-0711, Revision 3, "Human Factors Engineering Program Review Model," provides guidance to NRC staff and applicants for a design certification (DC) or a combined operating license (COL) on how to implement a satisfactory Human Factors Engineering (HFE) program, including verifying the proper staffing for the proposed design.

NUREG-0711, Section 8.4.4.1, criterion 4; Section 11.4.1.3, criterion 1; and Section 11.4.3.2, criterion 1 address minimum staffing.

In the response to RAI 352-8205, Question 18-67 (ADAMS Accession No. ML16074A294), KHNP stated the control room minimum staffing for the reactor operator position is 3 (one Reactor operator (RO), one Turbine Operator (TO), and one Electrical Operator (EO)), and that is what the Integrated System Validation (ISV) element of the HFE design process will address. This approach will establish a minimum control room staffing configuration that requires one more reactor operator beyond that required by 10 CFR 50.54(m).

The ISV demonstrates, among other things, that the proposed staffing levels in the DC meet applicable regulations. Since the current ISV plan does not address the manning configuration specified by 10 CFR 50.54(m), the staff's initial conclusion is that the application cannot be approved because it does not meet existing regulation.

However, staff recognizes the possibility that KHNP may be proposing a new control room minimum manning configuration specific to the APR1400 design that requires an additional licensed reactor operator than currently specified by regulation. It should be noted that if a COL applicant incorporates the APR1400 design certification document by reference, and then decides to reduce the minimum staffing to the level specified in 10 CFR 50.54(m)(2)(i), then it will be necessary for the COL applicant to deviate from the DCD. This will require the COL to demonstrate, by performing a new ISV, that reducing the minimum staffing level to the level specified by 50.54(m)(2)(i) will still permit the safe operation of the plant.

Please confirm that your plan is to establish an APR1400 design-specific minimum manning configuration different from current regulatory requirements in 50.54(m)(2)(i).



United States Nuclear Regulatory Commission

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