

## **KHNPDCDRAIsPEm Resource**

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**From:** Ward, William  
**Sent:** Monday, February 08, 2016 4:20 PM  
**To:** apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; daegeun.ahn@gmail.com; Andy Jiyong Oh; Mannon, Steven (steven.mannon@aecom.com); Erin Wisler (erin.wisler@aecom.com)  
**Cc:** Lee, Samuel; Ciocco, Jeff; Walker, Jacqwan; Junge, Michael; Ward, William  
**Subject:** APR1400 Design Certification Application REVISED RAI 374-8481 (14.3.9 - Human Factors Engineering ITAAC)  
**Attachments:** APR1400 DC RAI 349 COLP 8440 - revised.docx

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Also, this RAI was initially issued to you on December 22, 2015 with a 45-day expected response time. However, NRC recently identified issues with the wording of the RAI and is re-issuing the RAI with corrected wording. NRC expects that the 45-day response time should still be feasible beginning with the re-issue of this RAI. 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,

**William R. Ward, P.E.**  
**Senior Project Manager**  
**U.S. Nuclear Regulatory Commission**  
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**Subject:** APR1400 Design Certification Application REVISED RAI 374-8481 (14.3.9 - Human Factors Engineering ITAAC)  
**Sent Date:** 2/8/2016 4:19:45 PM  
**Received Date:** 2/8/2016 4:19:45 PM  
**From:** Ward, William

**Created By:** William.Ward@nrc.gov

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**Options**

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**Return Notification:** No  
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## REVISED REQUEST FOR ADDITIONAL INFORMATION 349-8440

Issue Date: 02/08/2016

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 14.03.09 - Human Factors Engineering - Inspections, Tests, Analyses, and Acceptance Criteria

Application Section:

### QUESTION

#### 14.03.09-1

The industry and the staff agreed upon a standardized format for design certification ITAAC based upon best practices, standardization, and underlying First Principles (Draft NEI 15-02 "Industry Guideline for the Development of Tier 1 and ITAAC under 10 CFR Part 52). NEI 15-02 documents the standardized format for HFE ITAAC. The standard HFE acceptance criteria for the HFE ITAAC, H01, states that:

An Integrated System Validation Report exists and concludes that acceptance criteria associated with each test scenario are satisfied upon initial performance of the scenarios or upon remediation of failures.

The staff reviewed APR1400 DCD Tier 1, Table 2.9-1, "Human Factors Engineering ITAAC," row 1, and had the following concerns:

- The acceptance criteria does not state that a report will be provided. Therefore, the staff would not be able to verify that the acceptance criteria associated with each test scenario were satisfied.
- The Acceptance Criteria states that "all pass or fail criteria associated with each test scenario are passed either on initial performance of the scenarios or following remediation of failures." However, "all pass or fail" criteria does not have the same meaning as the "acceptance criteria" for the test scenarios will be satisfied.

Therefore, revise the table to state that "An Integrated System Validation Report exists and concludes that acceptance criteria associated with each test scenario are satisfied upon initial performance of the scenarios or upon remediation of failures." Or, provide the basis for the wording provided.