

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Tuesday, April 05, 2016 1:56 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Junggho Kim (jhokim082@gmail.com); Andy Jiyong Oh; Christopher Tyree
Cc: Vettori, Robert; Dias, Antonio; Wunder, George; Umana, Jessica; Williams, Donna
Subject: APR1400 Design Certification Application RAI 456-8566 (09.05.01 - Fire Protection Program)
Attachments: APR1400 DC RAI 456 SPSB 8566.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. However, KHNP requests, and we grant, 60 days to respond to RAI question 09.05.01-41. We may adjust the schedule accordingly.

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

Thank you,

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Subject: APR1400 Design Certification Application RAI 456-8566 (09.05.01 - Fire Protection Program)
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REQUEST FOR ADDITIONAL INFORMATION 456-8566

Issue Date: 04/05/2016
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 09.05.01 - Fire Protection Program
Application Section: 9.5.1 Fire Protection

QUESTIONS

09.05.01-40

In its response to RAI 09.05.01-23, the applicant provided a markup to DCD Tier 2, Page 9.5A-11 as follows:

“For this FHA, the zone of influence is taken within a fire area or fire zone as rendering all equipment within that fire area or fire zone as inoperable and entry into the area or fire zone is assumed impossible for any operator actions. Similar to the assumptions for fire areas it is assumed that equipment that is not beneficial to safe shutdown will continue to operate, since no beneficial fire effects are credited. Fire cannot be credited to help place equipment in the desired position, but the extent of fire damage and impact is limited to the boundaries of the fire zone in which the fire occurs.”

SECY 90-016, “Evolutionary Light Water Reactor (LWR) Certification Issues and their Relationship to Current Regulatory Requirements,” states in part:

“Therefore the evolutionary ALWR designers must ensure that safe shutdown can be achieved, assuming that all equipment in any one fire area will be rendered inoperable by fire and that re-entry into the fire area for repairs and operator actions is not possible.”

The staff finds the above noted paragraph from page 9.5A-11 of the DCD contradictory since in the first sentence the applicant states that all equipment within the fire area is rendered inoperable while in the second sentence the applicant states that equipment that is not beneficial to safe shutdown will continue to operate. The second sentence also contradicts the guidance from SECY 90-016.

The applicant is requested to remove the sentence that indicates equipment that is not beneficial to safe shutdown will continue to operate.

09.05.01-41

In its response to RAI 09.05.01-39 the applicant stated

“The final FHA and FSSA is to be performed considering the effects of fire-induced spurious actuations that may result from heat or fire damage to digital I&C cabinets, if the external connections to those cabinets are made via fiber optic cables.”

The staff noted that in the applicant's response, there is no mention of the approach that would be used in order to perform the final FHA and FSSA when considering the effects of fire-induced spurious actuations that may result from heat or fire damage to digital I&C cabinets, if the external connections to those cabinets are made via fiber optic cables.

REQUEST FOR ADDITIONAL INFORMATION 456-8566

The applicant is requested to:

1. Describe the approach that will be used to evaluate the effects from spurious actuations that may be caused by heat from a fire inside or nearby cabinets that contain digital signal processing circuitry, if the external connections to those cabinets are made via fiber optic cables.
2. Describe any defense in depth measures that are provided to minimize the possibility of damage to circuitry inside cabinets or mitigate the consequences of a spurious actuation, should one occur.



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