KHNPDCDRAIsPEm Resource

From:	Ciocco, Jeff
Sent:	Thursday, July 16, 2015 12:16 PM
To:	apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Harry (Hyun Seung) Chang; Yunho Kim; Steven Mannon
Cc:	Huang, Jason; Clark, Theresa; Betancourt, Luis; Lee, Samuel
Subject:	APR1400 Design Certification Application RAI 85-7949 (03.09.04 - Control Rod Drive Systems)
Attachments:	APR1400 DC RAI 85 MEB 7949.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.

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

Thank you,

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Subject: APR1400 Design Certification Application RAI 85-7949 (03.09.04 - Control Rod Drive Systems)
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REQUEST FOR ADDITIONAL INFORMATION 85-7949

Issue Date: 07/16/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 03.09.04 - Control Rod Drive Systems
Application Section:

QUESTIONS

03.09.04-1

Are the functional requirements of the APR1400 CEDM identical to those of the first production tests, i.e. 76.2 cm/min for maximum stepping speed and 159kg for design drive line load, as described in FSAR Section 3.9.4.4? If not, what are they?

Also, in DCD Section 3.9.4.1, it states that the design duty requirement for the CEDM is a total cumulative CEA travel of 30,480 m (100,000 ft) operation without loss of function. The staff requests the applicant to clarify the basis of the design duty requirement of 100,000ft of travel. The functional requirements of the CEDM and the basis for the design duty requirement should be clearly stated in the DCD.

This information is necessary to complete the area of review described in SRP 3.9.4, Item I.1, which states that "[t]he descriptive information, including design criteria, testing programs, drawings, and a summary of the method of operation of the control rod drives, is reviewed to permit an evaluation of the adequacy of the system to perform its mechanical function properly."

03.09.04-2

From June 30 to July 2, 2015, the staff performed an audit of the CEDM summary stress report, CEDM design specification, and CEDM scram time qualification test report to verify the scramability of the CEDM established by analysis or test. The staff found that DCD Section 3.9.4.3 does not clearly state the differences between the APR1400 CEDM and those used in the production tests and deflection drop tests, including changes made such as seismic supports in upper portions of CEDM shroud, shroud tube wall thickness increase, and outside diameter increase of longer CEDM nozzle. The staff requests the applicant to clarify the exact differences between the APR1400 CEDMs, production test CEDMs, and deflection drop test CEDMs, in regard to supports, structural, material, and any other measurable differences so that the staff can determine if these tests can be used to confirm the seismic capability of the CEDM design to meet GDC 2. A comparison table and a short summary of the deflection test, along with design limits for the CEDM to ensure insertability under seismic conditions should be in incorporated into the DCD.


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