KHNPDCDRAIsPEm Resource

From: Ward, William
Sent: Friday, August 07, 2015 7:05 PM
To: 'apr1400rai@khnp.co.kr'; KHNPDCDRAIsPEm Resource; 'Chang, Harry'; 'Yunho Kim (yshh8226@gmail.com)'; jiyong.oh5@gmail.com; daegeun.ahn@gmail.com; Tyree, Christopher (christopher.tyree@aecom.com)
Cc: Ciocco, Jeff; Lee, Samuel; Steckel, James; McKirgan, John; VanWert, Christopher
Subject: APR1400 Design Certification Application RAI 139-8084 (15.3.1 - Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions)
Attachments: image001.jpg; APR1400 DC RAI 139 SRSB 8084.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,

William R. Ward, P.E.
Senior Project Manager
U.S. Nuclear Regulatory Commission
m/s T6-D38M
Washington, DC, 20555-0001
NRO/DNRL/Licensing Branch 2
ofc T6-D31
ofc (301) 415-7038 fax (301) 415-6350

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Please consider the environment before printing this email.

Hearing Identifier: KHNP_APR1400_DCD_RAI_Public
Email Number: 148

Mail Envelope Properties (cc0657260af3401581d10a845a2a4cf1)

Subject: APR1400 Design Certification Application RAI 139-8084 (15.3.1 - Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions)
Sent Date: 8/7/2015 7:05:13 PM
Received Date: 8/7/2015 7:05:16 PM
From: Ward, William

Created By: William.Ward@nrc.gov

Recipients:
"Ciocco, Jeff" <Jeff.Ciocco@nrc.gov>
Tracking Status: None
"Lee, Samuel" <Samuel.Lee@nrc.gov>
Tracking Status: None
"Steckel, James" <James.Steckel@nrc.gov>
Tracking Status: None
"McKirgan, John" <John.McKirgan@nrc.gov>
Tracking Status: None
"VanWert, Christopher" <Christopher.VanWert@nrc.gov>
Tracking Status: None
"'apr1400rai@khnp.co.kr'" <apr1400rai@khnp.co.kr>
Tracking Status: None
"KHNPDCDRAIsPEm Resource" <KHNPDCDRAIsPEm.Resource@nrc.gov>
Tracking Status: None
"'Chang, Harry'" <hyunseung.chang@gmail.com>
Tracking Status: None
"'Yunho Kim (yshh8226@gmail.com)'" <yshh8226@gmail.com>
Tracking Status: None
"jiyong.oh5@gmail.com" <jiyong.oh5@gmail.com>
Tracking Status: None
"daegeun.ahn@gmail.com" <daegeun.ahn@gmail.com>
Tracking Status: None
"Tyree, Christopher (christopher.tyree@aecom.com)" <christopher.tyree@aecom.com>
Tracking Status: None

Post Office: HQPWMSMRS05.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	657	8/7/2015 7:05:16 PM
image001.jpg	4205	
APR1400 DC RAI 139 SRSB 8084.pdf	79882	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:


U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

REQUEST FOR ADDITIONAL INFORMATION 139-8084

Issue Date: 08/07/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 15.03.01-15.03.02 - Loss of Forced Reactor Coolant Flow Including Trip of Pump Motor and Flow Controller Malfunctions
Application Section:

QUESTIONS

15.03.01-1

GDC 10 requires that the reactor core and associated coolant, control, and protection systems shall be designed with appropriate margin to assure that specified acceptable fuel design limits (SAFDLs) are not exceeded during any condition of normal operation, including the effects of anticipated operational occurrences (AOOs). SRP Section 15.3.1 provides guidance regarding analysis inputs to ensure that the pertinent system parameters cover the expected ranges.

Table 15.3.1-2 of the APR1400 DCD lists the assumptions and initial conditions used in the loss of flow analysis. The staff notes that the value listed in the table is greater than the tech spec minimum listed in LCO 3.4.1 of the APR1400 DCD. Referenced topical report CENPD-183-A, "Loss of Flow, C-E Methods for Loss of Flow Analysis" provides guidance which suggests that the analysis value should be based on the minimum core mass flow rate in order to challenge DNBR during a loss of flow event. This has led the staff to question the core and system performance analysis found in Section 15.3.1.3 of the APR1400 DCD.

Is the core mass flow rate input listed in Table 15.3.1-2 the limiting value in regards to the core and system performance analysis when considering the range available during operation? If not, update the core and system performance analysis in Section 15.3.1.3 to identify and account for the limiting core mass flow rate.