
REVISED RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**APR1400 Design Certification****Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD****Docket No. 52-046**

RAI No.: 480-8608
SRP Section: 09.01.02 - New and Spent Fuel Storage
Application Section: 9.1.2
Date of RAI Issue: 05/11/2016

Question No. 09.01.02-55

In RAI 79-7990, Question 9.1.2-1, the staff requested the applicant to discuss how the APR1400 design prevents the failure of non-seismic Category I SSCs from increasing the Keff in the new fuel storage pool (NFSP) or the spent fuel pool (SFP).

In its response the applicant stated that the spent fuel handling machine (SFHM) is designed to, in the event of a safe shutdown earthquake (SSE), not derail due to the strength of the rail mounting design, although the rails of the SFHM are designed as seismic Category III.

The staff evaluated the applicant's response and determined that additional information is required. The DCD classifies the SFHM as a seismic Category II system, but the rails of the machine are designed as seismic Category III. By the definition, as seismic Category III, these rails cannot be credited to remain functional following an SSE; therefore, these rails cannot be credited to prevent the derailment of the SFHM.

The staff requests the applicant to provide additional information clearly identifying how the SFHM design prevents it from falling into the SFP following an SSE (assuming failure of the seismic Category III rails), and to update the DCD accordingly.

Response - (Rev,1)

SFHM rail will be classified as seismic Category II SFHM rail and rail bolts are evaluated by applying the SSE load, and the results show that the rail is credited to prevent the derailment of the SFHM. The following is the analysis result to prove that.

Rail Bolt and Rail Analysis (Shin-Kori 3&4 Nuclear Power Plant)

Typical Cross Section of Spent Fuel handling Machine (SFHM) and the lateral load (SSE Load) from Spent Fuel Handling Machine was shown in Fig 1.

The loads act between two sets of rail bolts spaced 197 mm apart.

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Impact on DCD

DCD Tier 2, Table 3.2-1 will be revised as indicated in the attached markups.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Report.

APR1400 DCD TIER 2

Table 3.2-1 (29 of 86)

Item No. / Principal SSCs	Location ⁽²⁾	Safety Class	Quality Group	Codes and Standards	10 CFR 50, App. B ⁽³⁾	Seismic Category	Remarks
j. Fuel transfer tube	RCB, AB	NNS	D	N/A	A	II	(3)(d)
k. Refueling machine bridge rails and spent fuel handling machine bridge rails	RCB, AB	NNS	D	N/A	N/A	III	(3)(d)
l. CEA elevator	RCB	NNS	D	N/A	A	II	(3)(d)
m. CEA cutter	RCB	NNS	D	N/A	N/A	III	
n. CEA change platform	RCB	NNS	D	N/A	A	II	(3)(d)
o. Upper guide structure lifting rig	RCB	NNS	D	ASME Sec. III NF - 2007 with 2008 addenda	A	II	(3)(d)
p. Core barrel lifting rig	RCB	NNS	D	ASME Sec. III NF - 2007 with 2008 addenda	A	II	(3)(d)
q. Underwater television	RCB	NNS	N/A	N/A	N/A	III	
r. Refueling pool seal	RCB	NNS	D	N/A	A	II	(3)(d)
s. In-core instrumentation cutter	RCB	NNS	D	N/A	N/A	III	
t. Gripper operating tool	RCB	NNS	D	N/A	N/A	III	
u. CEA handling tool	RCB	NNS	D	N/A	N/A	III	
v. Refueling supervisory console	RCB	NNS	D	N/A	N/A	III	
w. Refueling simulator	AB	NNS	D	N/A	N/A	III	
x. ICI guide tube	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	
aa. ICI guide tube support	RCB	SC-1	A	ASME Sec. III NF -2007 with 2008 addenda	Yes	I	
ab. ICI insertion and removal tool	RCB	NNS	D	N/A	N/A	III	
ac. ICI sealing housing	RCB	SC-1	A	ASME Sec. III NB -2007 with 2008 addenda	Yes	I	