
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.: 207-8247
SRP Section: 12.02 – Radiation Sources
Application Section: 12.02 – Radiation Sources
Date of RAI Issue: 09/11/2015

Question No. 12.02-18

10 CFR 52.47(a)(5) requires that the FSAR contain the kinds and quantities of radioactive materials expected to be produced in the operation and the means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in 10 CFR 20.

SRP Section 12.2 indicates that the description of airborne sources should include a tabulation of the calculated concentrations of radioactive material, by nuclide, expected during normal operation, AOOs, and accident conditions for areas normally occupied by operating personnel and that the FSAR should provide the models and parameters used for the calculations.

As discussed during the source term audit (see ML15208A492 for audit plan) the application is unclear if the ventilation flow rates provided in FSAR Table 12.2-26 are minimum ventilation flow rates for each of the rooms and cubicles provided in that table. The applicant indicated during the audit that the FSAR will be updated to clarify that the ventilation flowrates provided are minimum flow rates. Please update the FSAR to provide this information.

Response – (Rev. 1)

The flow rates for Containment Purge System provided in DCD Table 12.2-26 (1 of 8) are the design flow rates. The airborne activity concentrations in the Containment Building provided in DCD Table 12.2-23 (2 and 3 of 4) are calculated based on these flow rates.

However, the flow rates for the cubicles in Auxiliary and Compound Buildings provided in DCD Table 12.2-26 (3 through 8 of 8) are the minimum ventilation flow rates required to maintain the airborne concentrations in frequently occupied areas below the values provided in Appendix B to 10 CFR 20 and to maintain the concentrations in areas not normally occupied where maintenance or inservice inspection must be performed less than 1 DAC, as specified in Appendix B to 10 CFR 20. The actual design flow rates are determined to provide higher air flows than those given in Table 12.2-26.

For clarity, the column title of DCD Table 12.2-26 (3 through 8) will be updated to clearly indicate the minimum required flow rate as indicated in Attachment.

Since some editorial errors were found in Table 12.2-26 (3 through 8), they will be corrected as indicated in the markups in Attachment.

In addition, to clarify the numbers of flanges and valves and source terms in valve room (063-P07) DCD Table 12.2-26 will be revised as indicated in Attachment.

Impact on DCD

DCD Table 12.2-26 (5 of 8) will be updated as indicated in Attachment.

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

RAI 207-8247 - Question 12.02-18_Rev.1

Table 12.2-26 (5 of 8)

Cubicle	Volume (m ³)	Leak Sources and Number of Sources	Leak Rate (L/min)	Source Terms ^{(1), (2)}	Minimum Required Ventilation Flow (m ³ /hr)
SFP Cleanup Pump Rm (078-A38A)	224	Flange (6) Valve 4" (3) Valve 6" (4)	5.00E-03 2.00E-03 4.01E-03	SFP	510
Reactor Makeup Water Pump Rm (078-A49B)	168	Flange (8) Pump Seal (2)	4.00E-03 1.67E-03	RMWT	340
Holdup Pump Rm (078-A50B)	311	Flange (8) Pump Seal (2)	4.00E-03 1.67E-03	Holdup Tank	340
Valve Rm (120-A23A)	77	Valve 3" (1) Valve 3" (1) Valve 3" (1)	5.00E-04 5.00E-04 5.00E-04	1.0 PCA RMWT BAST	510
Valve Rm (063-P07)	275	Flange (6) Valve 2" (9) Valve 2.5" (2)	3.00E-03 3.00E-03 8.33E-04	1.0 PCA	340
Equipment Waste Pump Rm (063-P21, P22)	138	Pump Seal (1) Flange (6) Valve 2" (2) Valve 3" (6)	8.33E-04 3.00E-03 6.66E-04 3.00E-03	0.32 PCA	340
Equipment Waste Tank Rm (063-R23, P24)	221	Flange (2)	9.99E-04	Equipment Waste Tank	340

Flange (4) Valve 2" (3) Valve 2.5" (2)	2.00E-03 9.99E-04 8.33E-04	1.0 PCA Without Noble Gas
Flange (2) Valve 2" (6)	9.99E-04 2.00E-03	1.0 PCA

12.2-91