RESPONSE TO AUDIT ISSUES

APR1400 Topical Reports

Korea Electric Power Corporation / Korea Hydro & Nuclear Power Co., LTD

Docket No. PROJ0782

Review Section	**TR Realistic Evaluation Methodology for LBLOCA of the APR1400**
Application Section	**Topical Report: APR1400-F-A-TR-12004 Realistic Evaluation Methodology for Large-Break LOCA of the APR1400**
Issue Date	**08/13/2015**

Audit Issues No. 37 (c)

The guidance in RG 1.157, Section 3.9.1 establishes acceptable controls regarding the calculation of radiation heat transfer. Section 4.2.2.1.2 of the topical report states that [ ]TS

Address the following concerns about this statement:

c. [ ]TS in Section 4.2.2.1.2 of the topical report is called "conservative." [ ]TS may actually be non-conservative. Justify [ ]TS

Response

(c)

As discussed in response to 37-(a) and (b), [ ]TS is calculated, whereas [ ]TS Thus, it only needs to examine the effects of [ ]TS However, it is clear that [ ]TS that is, it tends to decrease cladding temperature.

A sensitivity study for [ ]TS

Figure 1 through Figure 3 show cladding temperatures of hot rod for lower, center, and upper elevations. As discussed in topical report, [ ]TS

Figure 4 through Figure 6 show cladding temperatures of core average rod for lower, center, and upper elevations. As shown in these figures, it can confirm that core average rod cladding temperature tends to increase by [ ]TS

Figure 7 shows core collapsed water level. [ ]TS

Figure 8 through Figure 10 show vapor phase temperatures of hot channel for lower, center, and upper elevation, and Figure 11 through Figure 13 show those of average channel. As shown in these figures, there are insignificant differences on vapor phase temperature between nominal and [ ]TS Consequently, it can be concluded that the decrease in cladding temperature of hot rod is caused by [ ]TS

Figure 1. Hot Rod Cladding Temperature at Lower Elevation

Figure 2. Hot Rod Cladding Temperature at Center Elevation

Figure 3. Hot Rod Cladding Temperature at Upper Elevation

Figure 4. Average Rod Cladding Temperature at Lower Elevation

Figure 5. Hot Rod Cladding Temperature at Center Elevation

Figure 6. Hot Rod Cladding Temperature at Upper Elevation

TS

Figure 7. Core Collapsed Water Level

TS

Figure 8. Hot Channel Vapor Phase Temperature at Lower Elevation

Figure 9. Hot Channel Vapor Phase Temperature at Center Elevation

Figure 10. Hot Channel Vapor Phase Temperature at Upper Elevation

Figure 11. Average Channel Vapor Phase Temperature at Lower Elevation

Figure 12. Average Channel Vapor Phase Temperature at Center Elevation

TS

Figure 13. Average Channel Vapor Phase Temperature at Upper Elevation

Impact on DCD

There is no impact on the DCD.

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 Report

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