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**
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Audit Issues No. 58

The guidance in RG 1.157, Section 3.8 establishes acceptable controls for the calculation of critical heat flux. [   ]^{TS} It is unclear what the minimum value means since it is expected that the "dial" implies a multiplier. The distribution encompasses a value of 0.0 and the implication of that value is also unclear. [

]^{TS}

Response

In CAREM, 1.96 times standard deviation is required to cover 95 % of the uncertainty parameter range for normal distribution. In the SRS calculation, however, 3.09 times the standard deviation is used to cover 99.9 % of normal distribution for conservatism. [

]TS

Calculated CHF is used to determine heat transfer mode whether it is post CHF or pre CHF. Thus, minus value of CHF results in determination of post CHF heat transfer mode. Since post CHF heat transfer mode predicts low heat transfer coefficient, it can be expected that minus value of CHF multiplier increases cladding temperature.

[

]TS

However, minus value of CHF multiplier has no physical meaning. Therefore, it should be limited by certain low value. In this methodology, zero value is determined as lower limit of CHF multiplier. All SRS results for experiments and APR1400 in topical report will be revised.

TS

Figure 1. Cladding Temperatures for Various CHF Multipliers

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

Topical report will be revised as discussed above.

There is no impact on Technical or Environmental Report.

Table 5-1   Distributions and Ranges of the Uncertainty Parameters

TS