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. 27-e

NUREG/CR-5429, Section 2.2.2 discusses issues related to model nodalization. Address the following issues regarding nodalization of the APR1400:

e. Section 4.3.1.1 of NUREG/CR-5249 discusses the use of different nodalizations in the core to evaluate the hot channel bias. The topical report does not document or discuss such sensitivity studies. The selected nodalization may also overestimate the cross-flow into the hot assembly from the surrounding assemblies which is non-conservative for PCT calculation. Provide the basis for the selected radial nodalization of the core and upper plenum.

Response

As described in the response to the audit issue no. 76, [the two channel core model of CAREM is adequate to model the core and also includes some conservatism coming from using the higher Fr value for hot bundle. In addition, the two channel core modeling is adequately confirmed by various code assessments as described in Appendices of the topical report.]^{TS}

In this response, sensitivity calculation is performed to confirm the above. Four assemblies surrounding the hot assembly are explicitly modeled as surrounding channel in the sensitivity calculation. [

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In case of upper plenum, the adequate modeling of the upper plenum is quite arguable during reflood period and is treated by a bias in CAREM as described in the Section 4.2.3.2 of the topical report.

Table 1. Fr Values for Hot Pin, Hot Assembly, and Surrounding Assemblies   TS
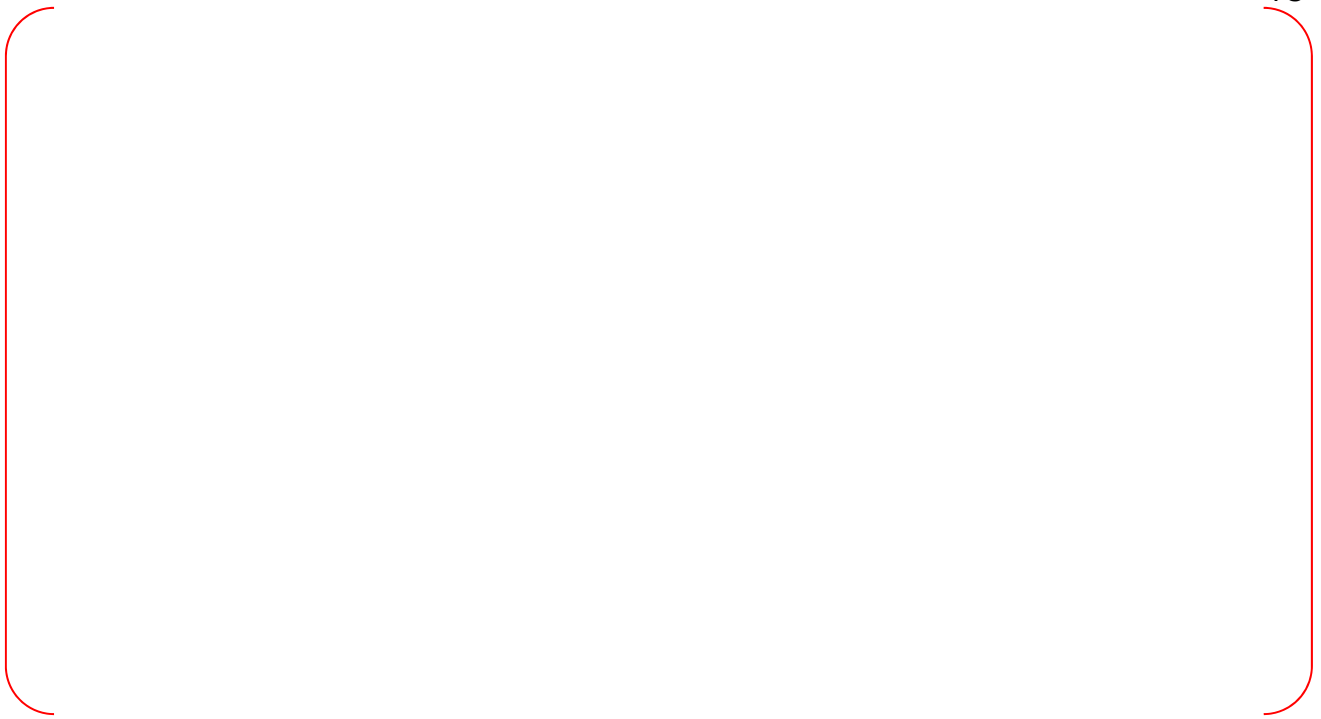
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Figure 1. Schematic Diagram for Current [   ]TS

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Figure 2. Sensitivity Calculation Results

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.