

KHNPDCDRAIsPEm Resource

From: Ciocco, Jeff
Sent: Monday, May 16, 2016 12:16 PM
To: apr1400rai@khnp.co.kr; KHNPDCDRAIsPEm Resource; Jung-ho Kim (jhokim082@gmail.com); Andy Jiyong Oh; Christopher Tyree
Cc: Burja, Alexandra; Karas, Rebecca; Wunder, George; Williams, Donna
Subject: APR1400 Design Certification Application RAI 484-8598 (09.01.01 - Criticality Safety of Fresh and Spent Fuel Storage and Handling)
Attachments: APR1400 DC RAI 484 SRSB 8598.pdf

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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Subject: APR1400 Design Certification Application RAI 484-8598 (09.01.01 - Criticality Safety of Fresh and Spent Fuel Storage and Handling)
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REQUEST FOR ADDITIONAL INFORMATION 484-8598

Issue Date: 05/16/2016

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 09.01.01 - Criticality Safety of Fresh and Spent Fuel Storage and Handling

Application Section:

QUESTIONS

09.01.01-42

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 9.1.1, guides the reviewer to verify that the computational method validation study is thorough and uses benchmark critical experiments that are similar to the normal-conditions and abnormal-conditions models and to verify that the k_{eff} bias and bias uncertainty values are conservatively determined. RAI 179-8190, Question 09.01.01-20 asked the applicant, in part, to either capture essential design and analysis details from the criticality code validation report WCAP-17889-P in the DCD or incorporate the report into DCD Tier 2 by reference. The staff notes that the applicant's April 22, 2016, response did not adequately address this issue. Because the code validation report is an area of review per NUREG-0800, the report or a thorough description of its contents must be on the docket.

Therefore, please either:

- (1) Submit WCAP-17889-P on the docket and incorporate it by reference into DCD Tier 2

or

- (2) Provide a thorough description of the methodology used for and the results from the code validation in DCD Tier 2 or the criticality analysis technical report, APR1400-Z-A-NR-14011-P. Such a description should include, at a minimum:
 - a. A high-level description of the methodology, including steps in the data analysis
 - b. How the area of applicability was determined
 - c. A summary explanation of the experiments selected for each of the three sets (fresh fuel with no absorber, fresh fuel with absorber, and fresh and burned fuel with absorber), including characteristics such as enrichment, pin pitch, and absorbers; and how the experiments were chosen
 - d. The number of experiments in each of the three sets of experiments
 - e. A listing of the trending parameters considered for each set of experiments and which showed statistically significant trends
 - f. Validation results for each set of experiments and a description of how the final biases/uncertainties were chosen (best estimate vs. trended analyses, e.g.)

