

March 31, 2017

Dr. Dennis C. Bley
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: INTERIM LETTER: CHAPTERS 2, 5, 8, 10, AND 11 OF THE NRC STAFF'S
SAFETY EVALUATION REPORT WITH OPEN ITEMS RELATED TO THE
CERTIFICATION OF THE APR1400 DESIGN

Dear Dr. Bley:

Thank you for your interim letter dated February 21, 2017, regarding the safety evaluation report (SER) with open items (OIs) associated with Chapters 2, 5, 8, 10, and 11 of the Advanced Power Reactor 1400 (APR1400) design certification application. As discussed during the 640th meeting of the Advisory Committee on Reactor Safeguards (ACRS), February 9–11, 2017, the U.S. Nuclear Regulatory Commission staff is currently working to resolve the OIs associated with the review of these chapters. We are pleased with your first conclusion and recommendation that your “reviews to date have not identified any issues that would significantly impact the overall review.”

The staff is interacting with the co-applicants, Korea Electric Power Corporation and Korea Hydro & Nuclear Power Company, Ltd., to resolve all of the OIs and the two recommendations (Items 2 and 3) in the “Conclusion and Recommendations” section of your letter. These two recommendations concern the shutdown cooling pump (SCP) and the design certification’s handling of the single unit plant with base load operation.

Regarding the SCP, the staff confirmed that the interconnection valve between the containment spray pump (CSP) and SCP suction lines must be open to provide: (1) a flow path from the in-containment refueling water storage tank to the SCP suction line; and (2) the permissive for signals to automatically start the SCP in the spray mode. Therefore, the SCP can be substituted for the CSP under restricted conditions. (The out-of-service CSP does not require isolation of the suction line. If the out-of-service CSP requires isolation, the reactor must be below Mode 4 per the technical specifications). The staff plans to issue a request for additional information to clarify the design control document (DCD).

Regarding the concern over clarification that the APR1400 is a single unit plant without reactor power variations to match electrical generator load following, the staff notes that DCD Chapters 1 and 3 explicitly state that the APR1400 is a single-unit plant. The staff will also ensure that the DCD is updated to clarify that the APR1400 will be operated as a baseload plant, as the applicant committed to do in the April 18, 2016, response to a request for additional information (Agencywide Documents Access and Management System Accession No. ML16109A198). Although Chapter 10 of the DCD states that the turbine generator has load following capabilities, the staff reviewed the turbine for base load operation only and did not consider load following capabilities as part of the design certification.

D. Bley

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The staff appreciates the willingness of ACRS to review the staff's SER with OIs on a chapter-by-chapter basis during this phase of the review process and looks forward to the next meeting.

Sincerely,

/RA Michael R. Johnson acting for Victor M. McCree/

Victor M. McCree
Executive Director
for Operations

cc: Chairman Svinicki
Commissioner Baran
Commissioner Burns
SECY

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