
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

APR1400 Design Certification

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

Docket No. 52-046

RAI No.: 286-8340
SRP Section: 06.02.01.01.A – PWR Dry Containments, Including Subatmospheric Containments
Application Section: 6.2.1.1 Containment Structure
Date of RAI Issue: 11/02/2015

Question No. 06.02.01.01.A-1

10 CFR 52.47(b)(1) states, in part, that a design certification (DC) application must contain the necessary inspections, tests, analysis and acceptance criteria (ITAAC) to provide reasonable assurance that a facility incorporating a DC is constructed in accordance with the certified design.

DCD Tier 1, Table 2.11.1-2, "Containment Structure ITAAC," includes an ITAAC for performing a containment peak pressure analysis with acceptance criteria that includes design margin. However, Table 2.11.1-2 does not demonstrate the as-built design conforms to the analysis described in DCD Tier 2, Section 6.2 and does not provide reasonable assurance that the key assumptions made in the containment pressure analyses, such as the area of the containment heat sinks, are valid. Therefore, the applicant is requested to add an ITAAC to Table 2.11.1-2 to verify the heat sink areas and compositions meet or exceed the assumptions used in DCD Tier 2, Table 6.2.1-23.

Response

In accordance with SRP Section 6.2.1.1.A. III, "Review Procedures," Item 2, the containment heat sink areas and compositions used in the containment pressure analyses should be conservatively assumed to maximize the containment pressure. The as-built parameters, such as heat sink areas and compositions, are to be conservative with respect to the assumptions used in Section 6.2.1.1 of the DCD.

A new ITAAC item will be added to Tier 1 Table 2.11.1-2 that will include the following wording for the Design Commitment; Inspections, Tests, and Analyses; and Acceptance Criteria.

Design Commitment	Inspections, Tests, and Analyses	Acceptance Criteria
6. The as-built containment heat sink areas and compositions are conservative with respect to the assumptions used in the containment pressure analyses.	6. Inspections of the as-built heat sink areas and compositions will be performed.	6. A report exists and concludes that the as-built containment heat sink areas and compositions are conservative with respect to the assumptions used in the containment pressure analyses.

Impact on DCD

Table 2.11.1-2 of DCD Tier 1 will be revised, as indicated in the attachment associated with this response.

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 Reports

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

Table 2.11.1-2

Containment Structure ITAAC

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
1. The reactor cavity floor area allows for spreading of core debris, enhancing its coolability.	1. Inspections of the as-built the reactor cavity will be performed.	1. A report exists and concludes that the large reactor cavity area exists in the as-built reactor cavity.
2. The reactor cavity has the core debris chamber to retain core debris.	2. Inspections of the as-built reactor cavity will be performed.	2. A report exists and concludes that the core reactor cavity includes a core debris trap.
3. Fill concrete slab of reactor cavity floor concrete is provided to protect against challenge to containment liner plate melt through.	3. Inspections of the as-built reactor cavity will be performed.	3. A report exists and concludes that the core debris chamber exists in the as-built reactor cavity.
4. The containment design pressure provides over a 10% margin above the maximum calculated peak pressure.	4. An analysis of the containment pressure response to a high energy line break will be performed to determine the limiting peak pressure.	4. A report exists and concludes that the containment peak pressure following a high energy line break remains below its design pressure with more than 10% margin.
5. The design basis LOCA containment pressure at 24 hours after postulated accident is less than 50 % of its calculated maximum pressure.	5. An analysis of the containment pressure response to a LOCA will be performed to show that the pressure at 24 hours after the postulated accident is less than 50% of its calculated peak pressure.	5. A report exists and concludes that the containment pressure is reduced less than 50% of its peak calculated pressure within 24 hours after the postulated accident.

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6. The as-built containment heat sink areas and compositions are conservative with respect to the assumptions used in the containment pressure analyses.

6. Inspections of the as-built heat sink areas and compositions will be performed.

6. A report exists and concludes that the as-built containment heat sink areas and compositions are conservative with respect to the assumptions used in the containment pressure analyses.