
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.: 455-8553
SRP Section: 14.03.06 - Electrical Systems - Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: DCD 14.3.2.6
Date of RAI Issue: 04/05/2016

Question No. 14.03.06-9

In its response to RAI 8284, Question 14.03.06-4, the applicant stated that an ITAAC to verify that the capacities of the Class 1E batteries can carry the worst case load profiles is currently addressed in the Design Commitment and ITAAC for Item 6 of DCD Tier 1, Table 2.6.3-3. This ITAAC verifies that each Class 1E battery is sized to supply its DBE loads, at the end of installed life, for pertinent required hours, without recharging. Please confirm that the worst case load profile for the Class 1E batteries is the DBE load profile, considering that the SBO load profile for the Class 1E batteries could be a longer duration.

Response

As stated in DCD Tier 2, Section 8.3.2.1.2.6, the battery is sized based on the duty cycle of the respective subsystems. Each battery is capable of supplying power to the worst-case operating loads for the period of the battery duty cycle. The sizing of the battery is performed in accordance with the IEEE Std. 485.

The worst case load profile for the Class 1E batteries is the DBE load profile which bounds the SBO load profile.

An aging factor of 1.25 of the battery sizing is considered to insure the capability of the Class 1E batteries at the end of installed life.

Both trains A and B batteries have a capacity of 2,800Ah and can supply dc power up to 2 hours without load shedding and additional 6 hours with load shedding. Train C and D batteries have a capacity of 8,800Ah and can supply dc power up to 16 hours without load shedding, as stated in technical report APR1400-E-P-NR-14005-P (Rev. 0), Section 5.1.2.6.1.2.

The load list, duty cycle diagrams and cell sizing worksheets of the Class 1E 125 Vdc batteries (trains A, B, C, and D) demonstrate the capacity and capability of the Class 1E batteries for the

pertinent required hours and are provided as Attachments 1, 2 and 3 to the response to RAI 441-8549 Question 08.03.02-3, (reference KHNP submittal MKD/NW-16-0498L dated May 13, 2016; ML16134A351).

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 Reports

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