

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.: 331-8419
SRP Section: 06.02.01.03 – Mass and Energy Release Analysis for Postulated Loss-of-Coolant Accidents (LOCAs)
Application Section: 16 (Technical Specifications)
Date of RAI Issue: 12/11/2015

Question No. 06.02.01.03-4

10 CFR 52.47(a)(11) states that a design certification must contain proposed technical specifications prepared in accordance with 50.36. 10 CFR 50.36(a)(3) states, in part, that technical specifications must contain surveillance requirements to assure that necessary quality of systems and components is maintained and the facility operates within limits.

Standard technical specifications (TS) for CE plants (NUREG-1432) contain a surveillance requirement (SR) to verify that each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head (3.5.2.4). Although the APR1400 TS for the safety injection system provide SR for the differential pressure developed by the pump at minimum flow rate (3.5.2.4) and for the design flow rate at design pressure (3.5.2.5), no SR is provided for the long term safety injection flow, which is higher than the flow at the differential pressure specified in SR 3.5.2.5, per DCD Tier 1 Table 6.3.2-1. Provide either a SR for the long term flow to be provided by the safety injection pumps, or enhance an existing SR to develop the pump curve (which would include the expected long term flow condition) for the safety injection pumps.

Response

Periodic surveillance testing of SIS pumps to detect gross degradation caused by impeller structural damage or other hydraulic component problems is accomplished by measuring the pump developed head at only one point of the pump characteristic curve.

According to the ASME OM ISTB-2000, the safety injection pump is categorized as a Group B pump. The ASME OM ISTB-5122 states that Group B tests (with 3 months intervals) shall be conducted with the pump operating at a specified reference point. Therefore, a Group B test at a minimum of one reference point satisfies the requirement of the ASME OM.

Since the APR1400 TS for the safety injection system provides SRs for the differential

pressure developed by the pump at the minimum flow rate (SR 3.5.2.4) and for the design flow rate at the design pressure (i.e. pump rated condition, SR 3.5.2.5), it is not necessary to add the SR for the SIP maximum flow rate (the long term safety injection flow).

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 Environmental Report.