
REVISED 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.: 30-7927
SRP Section: 03.02.02 – System Quality Group Classification
Application Section: 3.2.2
Date of RAI Issue: 06/15/2015

Question No. 03.02.02-2

On DCD Tier 2, Section 3.2.3, page 3.2-13, the applicant states: “Piping supports and component supports are in the same safety class and have the same QA requirements as the piping and components to which they apply.” Please clarify in DCD Tier 2, Section 3.2.2 and/or 3.2.3 how supports are classified with respect to quality group classification. If they are classified in the same Quality Group as the piping or components that they support, this may have unintended consequences. For example that supports for Class 1 RCPB components are designed to ASME BPV Code Section III Subsection NB criteria rather than Subsection NF as described in DCD Tier 2, Section 3.9.3 (page 3.9-55).

Response - (Rev. 1)

The Quality Group and applicable codes and standards for the piping supports and component supports are in accordance with RG 1.26 and Table 1 of that guide. The piping supports are designed in accordance with the Quality Group, codes & standards specified in Table 3.2.2-1 of the SRP which is consistent with that classification provided in RG 1.26. DCD Section 3.2.3 will be revised to clarify that the supports for piping and components have the same classification as the component or piping supported. Supports for APR1400 Quality Group A, B, and C mechanical components and piping are constructed to ASME Code, Section III, Subsection NF requirements. The principal construction code for supports for non-safety related components and piping is the same as that for the supported component or piping.

Impact on DCD

DCD Tier 2, subsection 3.2.3 will be revised as indicated in the attached markup. The proposed revision to this RAI also changes the revised wording to section 3.2.2 that was proposed in RAI 72-8020 Question 03.02.02-3. The impacts of this revised response on RAI 72-8020 is included in the Attachment for information. RAI 72-8020 Question 03.02.02-3 will be revised to reflect the proposed changes noted.

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.

APR1400 DCD TIER 2

of 10 CFR Part 50, Appendix B, and are designated as such in Table 3.2-1 in the column labeled 10 CFR Part 50, Appendix B.

~~Piping supports and component supports are in the same safety class and have the same QA requirements as the piping and components to which they apply.~~

Change

The safety classification systems described above meet the intent of NRC RG 1.26 and the requirements of 10 CFR 50.55a

3.2.4 Classification Listings

Supports for piping and components have the same classification as the component or piping supported. Supports for APR1400 Quality Group A, B, and C mechanical components and piping are constructed to ASME Code, Section III, Subsection NF requirements. The principal construction code for supports for non-safety related components and piping is the same as that for the supported component or piping.

Table 3.2-1 provides component classifications as defined in Subsections 3.2.1 through 3.2.3. Table 3.2-1 also provides the quality assurance requirements of 10 CFR Part 50, Appendix B, and the applicable codes and standards.

3.2.5 Combined License Information

COL 3.2(1) The COL applicant is to identify the seismic classification of site-specific SSCs that should be designed to withstand the effects of the SSE.

COL 3.2(2) The COL applicant is to identify the quality group classification of site-specific systems and components and their applicable codes and standards.

3.2.6 References

1. 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," U.S. Nuclear Regulatory Commission.
2. 10 CFR 100.11, "Determination of Exclusion Area, Low Population Zone, and Population Center Distance," U.S. Nuclear Regulatory Commission.
3. 10 CFR Part 100, Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," U.S. Nuclear Regulatory Commission
4. 10 CFR Part 50, Appendix S, "Earthquake Engineering Criteria for Nuclear Power Plants," U.S. Nuclear Regulatory Commission.

Replacement

Quality Group A

Quality Group A applies to RCPB components whose failure would not prevent the reactor from being shut down and cooled down in an orderly manner with normal makeup and components that are or can be isolated from the reactor coolant system by two valves in series (with automatic closure of open valves).

Quality Group A pressure retaining components ~~and their supports~~ are designed to meet the requirements for Class 1 components in ASME Section III, Division I, Subsection NB ~~and NF~~.

Quality Group B

Quality Group B applies to pressure-retaining components ~~and their supports~~ that support the systems or portions of systems listed in the regulatory position C.1 of RG 1.26.

These systems or portions of systems are as follows:

- a. Portions of the RCPB that are excluded from Quality Group A
- b. Systems or portions of systems important to safety that are designed for the (i) emergency core cooling, (ii) post-accident containment heat removal, or (iii) post-accident fission product removal
- c. Systems or portions of systems important to safety that are designed for (i) reactor shutdown or (ii) residual heat removal
- d. Portions of the steam and feedwater systems of pressurized-water reactors extending from and including the secondary side of steam generators up to and including the outermost containment isolation valves, and connected piping up to and including the first valve (including a safety or relief valve) that is either normally closed or capable of automatic closure during all modes of normal reactor operation
- e. Systems or portions of systems that are connected to the reactor coolant pressure boundary and are not capable of being isolated from the boundary during all modes of normal reactor operation by two valves, each of which is either normally closed or capable of automatic closure

Quality Group B pressure retaining components ~~and their supports~~ are designed to meet the requirements for Class 2 components in ASME Section III, Division I, Subsection NC; ~~NF~~ and NG.

Quality Group C

Quality Group C applies to pressure-retaining components ~~and their supports~~ that are not part of the reactor coolant pressure boundary or included in Quality Group B but part of the following:

RAI 72-8020 - Question 03.02.02-3 Attachment

- a. Cooling water and auxiliary feedwater systems or portions of those systems important to safety that are designed for emergency core cooling, post-accident containment heat removal, post-accident containment atmosphere cleanup, or residual heat removal from the reactor and from the spent fuel storage pool
- b. Cooling water and seal water systems or portions of those systems⁵ important to safety that are designed for the functioning of components and systems important to safety
- c. Systems or portions of systems that are connected to the reactor coolant pressure boundary and are capable of being isolated from that boundary during all modes of normal reactor operation by two valves, each of which is either normally closed or capable of automatic closure
- d. Systems, other than radioactive waste management systems, not covered by the above item a. through item c. that contain or may contain radioactive material and whose postulated failure would result in conservatively calculated potential offsite doses that exceed 0.5 rem to the whole body or its equivalent to any part of the body

Quality Group C pressure retaining components ~~and their supports~~ are designed to meet the requirements for Class 3 components in ASME Section III, Division I, Subsection ND ~~and NF~~.