
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.: 116-8054
SRP Section: 14.03.08 – Radiation Protection Inspections, Tests, Analyses, and Acceptance Criteria
Application Section: Tier 1, Various Sections
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Question No. 14.03.08-10

10 CFR 50.48 requires that the risk of fire-induced radiological hazards to the public, environment, and personnel are minimized.

Regulatory Guide 1.189 states that the plant should maintain the ability to minimize the potential for radioactive releases to the environment in the event of a fire and that radioactive waste buildings, storage areas, and decontamination areas should be separated from other areas of the plant by fire barriers having at least 3-hour ratings.

SRP Section 14.3 indicates that the purpose of inspections, tests, analysis, and acceptance criteria (ITAAC), is to verify that a facility referencing the design certification is built and operates in accordance with the design certification and applicable regulations.

In addition, SRP Section 14.3.8 indicates that the reviewer should ensure that Tier 1 identifies and describes, commensurate with their safety significance, those SSCs that provide radiation shielding, confinement or containment of radioactivity, ventilation of airborne contamination, or radiation (or radioactivity concentration) monitoring for normal operations and during accidents.

While Tier 1 provides ITAAC associated with fire barriers, it does not appear that there are any ITAAC to verify that the plant design incorporates fire and smoke barriers to minimize the potential for radioactive releases to the environment from significant radiation sources in the plant, in the event of a fire.

Please include an ITAAC to verify that fire and smoke barriers relied on to contain radioactive material releases from significant radiation sources are installed and qualified for their intended use.

Response

DCD Tier 1, Table 2.2.5-1 will be revised to include in the ITAAC for Design Commitment 3 for fire hazards to verify that fire and smoke barriers in the areas containing the radioactive materials are capable of minimizing potential for the radioactive releases to the environment.

Impact on DCD

DCD Tier 1, Table 2.2.5-1 will be revised as indicated in the attached markup.

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 1

Table 2.2.5-1 (3 of 4)

Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
<p>3. The key characteristics of the protective provisions against fire hazards are as follows:</p> <ul style="list-style-type: none"> - The redundant trains of systems, components and cables important to safety, except for the control room complex and inside containment, are separated from each other by fire barriers having a 3-hour rating. - Openings and penetrations through fire barriers are protected by components, i.e., fire doors, fire dampers, penetration seals, having fire resistance equivalent to that of the barrier. - MCR complex and RSR are separated from each other and other fire areas by 3-hour rated fire barriers. 	<p>3. Inspection of the as-built protective provisions against fire hazards will be conducted. Especially, testing will be performed on doors and penetration seals.</p>	<p>3. The as-built 3-hour rated fire barriers conform with the following criteria to preserve the safety shutdown capability of plant following a fire:</p> <ul style="list-style-type: none"> - Fire barriers that define the boundaries of fire area should achieve the separation of redundant trains of safe shutdown from each other so that both are not subject to damage from a single fire. - Openings and penetrations through fire barriers are protected by components, i.e., fire doors, fire dampers, penetration seals, having fire resistance equivalent to that of the barrier. - Barriers having a 3-hour rating should separate panels providing alternative and dedicated shutdown capability from the control room complex.

Fire and smoke barriers exist to minimize the potential for radioactive releases to the environment from the areas containing significant radiation sources.