
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.: 256-8321
SRP Section: 09.02.02 - Reactor Auxiliary Cooling Water Systems
Application Section: 9.2.2
Date of RAI Issue: 10/19/2015

Question No. 09.02.02-6

As discussed in Standard Review Plan (SRP) 9.2.2 Section II, "Acceptance Criteria," General Design Criteria (GDC) 4 requires the Component Cooling Water System (CCWS) to be designed to withstand the effects of missiles inside and outside of containment, effects of pipe whip, jets, environmental conditions from high- and moderate-energy line breaks, and dynamic effects of flow instabilities and attendant loads (i.e., water hammer) during normal plant operation as well as upset or accident conditions.

Compliance with the requirements of GDC 4 is based on identification of the essential portions of the system that are to be protected from dynamic effects (mentioned above) and how the system will be capable of continuing to perform its safety function in the environmental conditions that may result from high and moderate energy line breaks and the resulting discharged fluid.

APR1400 DCD Table 3.5-4, "Essential Systems and Components to be protected from Externally Generated Missiles," contains a list of protected SSCs and the missile barrier. In reviewing Table 3.5-4, the staff noticed that the component cooling water heat exchanger (CCWHX) building was identified as the missile barrier for all of the protected components associated with the CCWS; however, based on the staffs review of the general arrangement drawings in DCD Tier 2, Figures 1.2-11 through 1.2-19 and the information provided in DCD Tier 1, Table "2.7.2.2-1, "Component Cooling Water System Equipment and Piping Location / Characteristics," the only CCWS components contained in the CCWHX building are the component cooling water system exchangers. The CCW pumps and CCW makeup pumps are located in the Auxiliary Building. The staff believes that the identification of the CCWHX building as the missile barrier for the CCW pumps and CCW makeup pumps may be in error. Therefore, the applicant is requested to update Table 3.5-4 to be consistent with the design presented in the application.

Response

The CCW pumps and CCW makeup pumps are located in the Auxiliary Building. Table 3.5-4 will be revised for consistency.

Impact on DCD

The DCD Table 3.5-4 will be revised as shown in the Attachment.

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

Table 3.5-4

Essential Systems and Components to Be Protected
from Externally Generated Missiles

Protected Components	Missile Barrier
Chemical and Volume Control System Regenerative heat exchanger Letdown heat exchanger Charging pump mini-flow heat exchanger Control volume tank Charging pump (auxiliary charging pump) Boric acid storage tank Safety-related pipes and valves	Auxiliary Building
Class 1E electric systems, including on-site safety-related portions of the Emergency Diesel Generator System necessary to provide emergency electric power to the other systems identified in this table.	Auxiliary Building
Spent Fuel Pool Cooling Cleanup System Spent Fuel Pool Heat Exchanger Spent Fuel Pool Clean Up Pump Safety-related Pipes and Valves	Auxiliary Building
Main Steam System MSIVs and pipe between MSIVs and containment	Auxiliary Building
Shutdown Cooling System Shutdown Cooling Pump and Heat Exchanger RCPB Pipes and Valves	Reactor Containment and Auxiliary Building
Essential Service Water System Essential Service Water Pump Safety-related Pipes and Valves	ESW Building
Control Room HVAC System AHU, ACU Control, Isolate and Smoke Damper	Auxiliary Building
Component Cooling Water System Component Cooling Water Heat Exchanger Component Cooling Water Pump Component Cooling Water Makeup Pump Safety-related Pipes and Valves	Component Cooling Water Heat Exchanger Building <div style="text-align: center;">  and Auxiliary Building </div>