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.:	**493-8621**
SRP Section:	**09.02.01 - Station Service Water System**
Application Section:	**9.2.1**
Date of RAI Issue:	**05/31/2016**

Question No. 09.02.01-9

In RAI 211-8236, Question 09.02.01-1 Part (f), the staff requested the applicant to address in the essential service water system (ESWS) the isolation of the radioactive contamination event in accordance with Standard Review Plan (SRP) Section 9.1 Subsection III.3.D.

In the response (ML16083A540), the applicant added combined license (COL) Item 9.2(38). COL 9.2(38) requires the COL applicant to provide operational procedures and maintenance programs as related to leak detection and contamination control in the ESWS.

The NRC staff reviewed the response and determined it is incomplete. SRP Section 9.2.1 Subsection III.3.D asks that the ESWS system piping and instrumentation diagrams (P&IDs) show radiation monitors located on the system discharge and at components susceptible to leakage, and these components can be isolated by one automatic and one manual valve in series. The staff reviewed the P&ID of Figure 9.2.1-1 and the RAI response, and could not find the above information. The applicant is requested to provide the isolation valve information and radiation monitors in the P&ID in accordance with the SRP guidance.

Response

The Radiation Monitoring System is denoted as “PR” in the flow diagram according to the System Clarifying Symbol List of Tier 2, Figure 1.7-1 (3 of 4). The Radiation Monitoring System in the ESWS is provided in each discharge line of the CCW heat exchanger cold side (ESW) as described in Tier 2, Figure 9.2.1-1 for the early detection feature of any potential radioactive leakage from the CCWS to the ESWS.

No radioactive contamination leakage is expected to go directly from the RCS to the ESWS. As described in DCD Tier 2, Subsection 9.2.1.2, the CCWS serves as an intermediate barrier between the RCS and the ESWS. The ESWS removes the plant residual heat only through the CCWS; i.e., no other contamination source exists. As a result, no contamination or a very low level of contamination of the system is expected through the CCW heat exchangers.

Additionally, the CCW heat exchangers are plate type and the plate material is titanium, which minimizes the potential for pinhole leaks.

Prior to any radiation leakage being detected in the ESWS, radiation alarms on the CCWS side alerts the operators of contamination in the CCWS. The affected CCWS division is immediately isolated followed by the isolation valves (V1005 ~ V1016) on the inlet and outlet lines of the CCW heat exchanger cold side (ESW) to prevent possible contamination of the UHS and the environment.

PR of Figure 9.2.1-1 in DCD Tier 2 will be corrected to PR: RE/RT-113, 114 in accordance with Figure 11.5-1.

Impact on DCD

Figure 9.2.1-1 of DCD Tier 2 will be revised as indicated in 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.

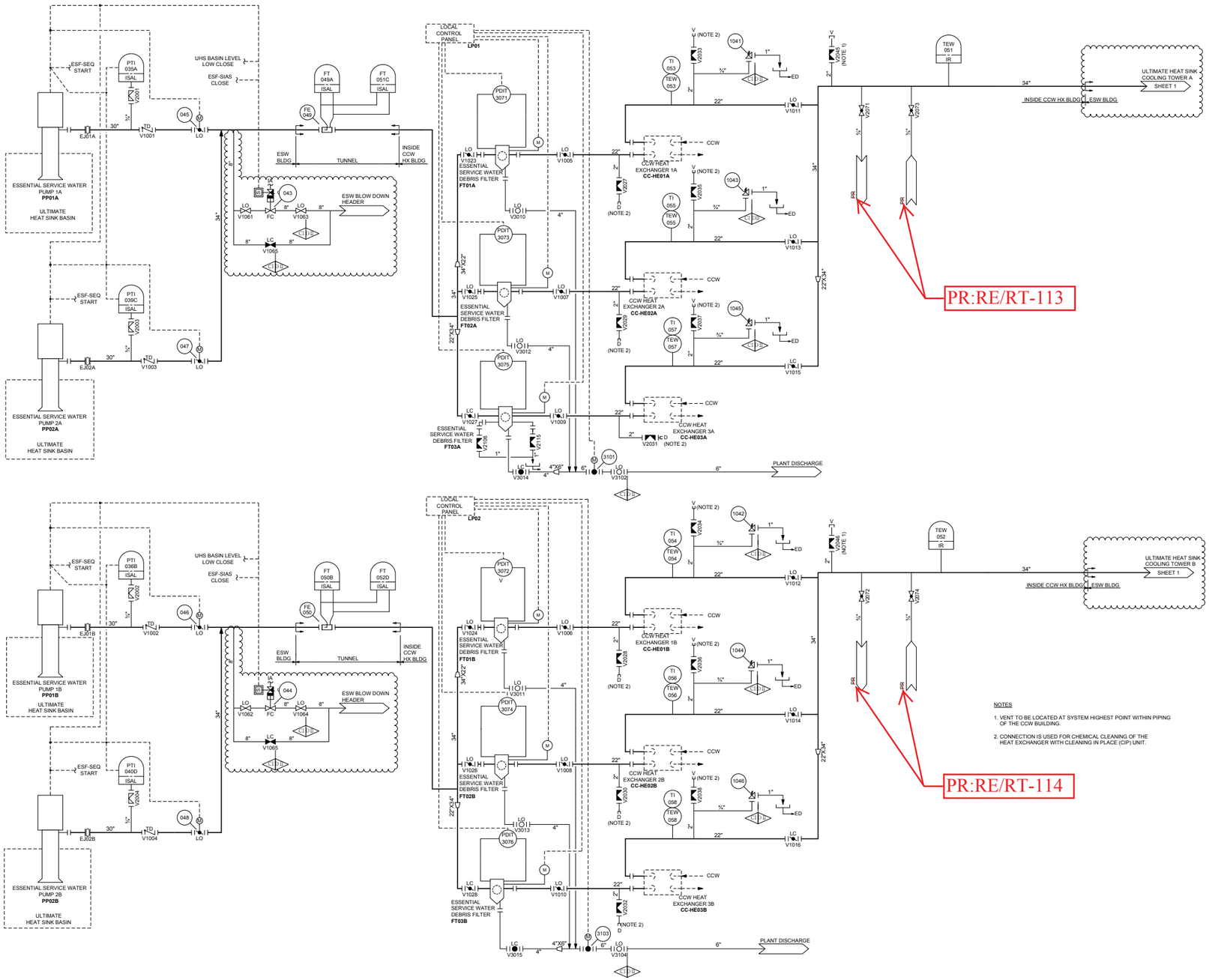

Figure 9.2.1-1 Essential Service Water System Flow Diagram