

KHNPDCRAIsPEm Resource

From: Ciocco, Jeff
Sent: Monday, September 14, 2015 8:16 AM
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Cc: Chien, Nan; Segala, John; Wunder, George; Lee, Samuel
Subject: APR1400 Design Certification Application RAI 214-8250 (09.04.05 - Engineered Safety Feature Ventilation System)
Attachments: APR1400 DC RAI 214 SCVB 8250.pdf; image001.jpg

KHNP,

The attachment contains the subject request for additional information (RAI). This RAI was sent to you in draft form. Your licensing review schedule assumes technically correct and complete responses within 30 days of receipt of RAIs.

Please submit your RAI response to the NRC Document Control Desk.

Thank you,

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REQUEST FOR ADDITIONAL INFORMATION 214-8250

Issue Date: 09/14/2015
Application Title: APR1400 Design Certification Review – 52-046
Operating Company: Korea Hydro & Nuclear Power Co. Ltd.
Docket No. 52-046
Review Section: 09.04.05 - Engineered Safety Feature Ventilation System
Application Section:

QUESTIONS

09.04.05-1

Emergency Diesel Generator Area HVAC System:

General Design Criteria (GDC) 17, “Electric power systems,” requires the proper functioning of the essential power systems. Standard Review Plan (SRP) Section 9.4.5 is used by the staff to review Emergency Diesel Generator Area HVAC System. Section II of this SRP “Acceptance Criteria”, Item 4 under Technical Rationale, provides the following guidance to demonstrate compliance with GDC 17:

With regard to the ESFVS, the plant design should ensure that electrical contacts and relays in diesel generator rooms are protected from dust, dirt, and grit.

The above guidance is also mentioned in NUREG/CR-0660, “Enhancement of Onsite Emergency Diesel Generator Reliability,” item 2 under Subsection A, Recommendations. DCD Tier 2, Table 8.1-2, “Criteria and Guidelines for Electric Power Systems,” shows that essential electrical equipment conform to the guidelines of NUREG/CR-0660. However, there is no specific information in the DCD that describes how the Emergency Diesel Generator Area HVAC System removes dust, dirt, and grit from the diesel generator rooms. Please describe in the DCD how the above guidance is met, or alternatively, to provide justification why the above guidance does not need to be met.

09.04.05-2

Auxiliary Building Controlled Area HVAC System:

1. According to DCD Tier 2, Section 9.4.5.1.3, the design and construction of air cleanup units (ACUs) (AU01A, AU01B, AU01C, AU01D, AU03, AU04, AU05, AU06, AU07, and AU08) conform to ASME AG-1-2009, “Code on Nuclear Air and Gas Treatment.” AG-1 specifies that ACU heating coils should be inspected and tested per AG-1, CA-5400. However, DCD Tier 2, Sections 9.4.5.4.3 does not address the inspection and testing requirements of heating coils. Please provide the heating coil inspection and testing requirements in the DCD or provide justification for why it is not needed.

2. Regulatory Position C.3.2 of Regulatory Guide 1.140, “Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Normal Atmosphere Cleanup Systems in Light-Water-Cooled

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Nuclear Power Plants,” states that to ensure reliable in-place testing, the volumetric air-flow rate of a single cleanup unit should be limited to approximately 849.51 m³/min (30,000 cfm). If a total system air flow in excess of this rate is necessary, multiple units should be used.. The staff reviewed DCD Tier 2, Section 9.4.5.2.3.1, and found that the exhaust air flow rate through AU05 and AU07 is 38,000 cfm. Also, the exhaust air flow rate through AU06 and AU08 is 36,150 cfm. The applicant did not indicate whether multiple-units for AU05, AU07, AU06 and AU08 would be used. Therefore, to conform to the guidance in RG 1.140, Regulatory Position C.3.2, please modify the DCD to limit a single ACU to 30,000 cfm or less or provide justification for ensuring reliable in-place testing with higher flowrates.

