

## KHNPDCDRAIsPEm Resource

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**Sent:** Tuesday, August 25, 2015 2:04 PM  
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**Cc:** Chien, Nan; Segala, John; Wunder, George; Lee, Samuel  
**Subject:** APR1400 Design Certification Application RAI 172-8196 (09.04.02 - Spent Fuel Pool Area Ventilation System)  
**Attachments:** APR1400 DC RAI 172 SCVB 8196.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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| image001.jpg                     | 5040 |                      |

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## REQUEST FOR ADDITIONAL INFORMATION 172-8196

Issue Date: 08/25/2015

Application Title: APR1400 Design Certification Review – 52-046

Operating Company: Korea Hydro & Nuclear Power Co. Ltd.

Docket No. 52-046

Review Section: 09.04.02 - Spent Fuel Pool Area Ventilation System

Application Section:

### QUESTIONS

09.04.02-1

There are two questions related to Fuel Handling Area HVAC System:

1. GDC 61 requires that the fuel storage and handling, radioactive waste, and other systems that may contain radioactive materials be designed to ensure adequate safety under normal and postulated accident conditions. This criterion specifies that such facilities be designed to include appropriate containment, confinement, and filtering systems. In order to ensure appropriate containment, confinement, and filtering during accident conditions, the fuel handling area emergency HVAC subsystem should be designed to maintain a slight negative pressure between the potentially radioactive areas and the non-radioactive areas. The staff reviewed APR1400 DCD Tier 2, Figure 9.4.2-1, "Fuel Handling Area HVAC System Flow Diagram," and it does not appear to have ductwork that connects the two spent fuel pool (SFP) cooling heat exchanger (HX) rooms to the two fuel handling area emergency exhaust air cleaning units (ACUs). Therefore, there is no way to maintain a slightly negative pressure during accident conditions. Please provide clarification and appropriate markups to Figure 9.4.2-1 in the DCD.

2. GDC 61 requires that the fuel storage and handling, radioactive waste, and other systems that may contain radioactive materials be designed to ensure adequate safety under normal and postulated accident conditions. This criterion specifies that such facilities be designed to include appropriate containment, confinement, and filtering systems. RG 1.52, "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants," Regulatory Position C.4, "Component Design Criteria and Qualification Testing," states that air heaters should be designed, constructed, and tested in accordance with Section CA of ASME AG-1-2009 with addenda. DCD Tier 2, Section 9.4.2.2 states that the safety-related fuel handling area emergency exhaust ACUs contain an electric heating coil that is located upstream of the carbon adsorber to maintain the relative humidity of air entering the carbon adsorber below 70 percent to provide reasonable assurance of the carbon adsorber efficiency. According to APR1400 DCD Tier 2, Section 9.4.2.1, the design and construction of the fuel handling area emergency exhaust ACUs conform to American Society of Mechanical Engineers (ASME) AG-1, "Code on Nuclear Air and Gas Treatment." ASME AG-1 specifies that heating coils should be inspected and tested per AG-1, CA-5400. However, DCD Tier 2, Section 9.4.2.4, "Inspection and Testing Requirements," does not discuss inspection and testing requirements for the heating coils inside AU02A and AU02B. Please provide clarification and appropriate markups to Section 9.4.2.4 in the DCD.

